

ART. IV.—*Further Descriptions of Australian Earthworms, Part I.*

By BALDWIN SPENCER, M.A., C.M.Z.S.,

Professor of Biology in the University of Melbourne.

(With Plates IV.-XII.)

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Since the previous publication by Mr. Fletcher and myself of descriptions of Australian earthworms, Mr. Beddard has published his extensive and valuable monograph dealing with the Oligochaeta, and, for the sake of convenience, I have adopted in this paper the generic names used by him.

The present communication deals with specimens collected in Queensland and Victoria, and includes a description of 37 new species. Of these, seven belong to the genus *Megascolides*, three to *Cryptodrilus*, thirteen to *Diporochaeta*, nine to *Megascolex*, and three to *Digaster*, while, in the case of two species, it has been found necessary to form new genera, for which the names *Trichaeta* and *Diplotrema* are proposed.

For valuable assistance in collecting, I am indebted to Messrs. C. French, C. Frost, Dudley Le Souëf, T. Steel, J. Shephard, C. M. Maplestone, H. T. Tisdall, G. B. Pritchard, J. H. Fardy, R. A. O'Brien, and W. Mann.

The earthworm fauna of Australia is peculiarly rich, but at present our knowledge of it is almost entirely confined to specimens collected in the eastern coastal districts, and the present classification can only be regarded as a temporary one.

In this descriptive notice only macroscopic characters are dealt with. Miss G. Sweet and Miss A. M. Lambert have been recently engaged in research, in the Biological Laboratory of the Melbourne University, into the structure respectively of the spermiducal glands and associated structures and the nephridia. A paper upon the former by Miss Sweet, containing much

valuable information, will shortly appear, and the results of Miss Lambert's work on the nephridia will be published before long; this work will, it is hoped, enable us to gain a better idea of the relationship of the different forms. So long as only a limited number of species were known the work of classifying appeared to be comparatively simple, but as our collections increase it becomes evident that the present arrangement is only a tentative one. In illustration of this it may be pointed out that even the family Perichaetidae is extremely difficult to adequately define and that further work may render it necessary to combine in one family the genera which are at present referred to Perichaetidae and Cryptodrillidae.

In regard to the distribution in Australia of the genera, as defined by Beddard, it may be noted that *Megascolides* and *Diporochaeta* are distinctly characteristic of Victoria. *Cryptodrillus* is well represented in New South Wales and Victoria, but poorly in Queensland, and the same applies to *Megascolex*, while *Acanthodrillus* and *Perichaeta* are unrepresented in south-eastern Australia.

Trichaeta, gen. nov.

Perichaetidae with not more than six setae on each side of the segment, arranged in pairs. Nephridia plectonephric. Spermiducal glands lobate.

Trichaeta australis, sp. n. (Figs. 1, 2, 3). Spirit specimens $3\frac{1}{2}$ inches long, $\frac{1}{4}$ inch broad. Number of segments 140.

Prostomium completely dovetailed into the peristomium, which is ribbed all round.

Clitellum not distinguishable (though the specimens are apparently mature).

A swollen glandular patch in the mid ventral line, half on segment 15 and half on segment 16.

Setae difficult to see in spirit specimens. Arranged typically in three pairs on each side; the ventral pair very regular along the whole length; the two other pairs irregularly arranged, and occasionally, but not often, one of these pairs may be wanting. The setae of each pair always placed close together.

Male pores on well marked papillae on segment 18 at the level of the ventral pair of setae.

Oviduct pores on segment 14.

Spermathecal pores two in number; intersegmental; between segments 7 and 8, and 8 and 9.

Alimentary canal. Gizzard in segment 5. No vascular swellings or calciferous glands. Large intestine commencing in segment 18.

Blood vascular system. Single dorsal vessel. Two large hearts in segments 13 and 14, two smaller ones in segments 11 and 12.

Excretory system, plectonephric. Peptonephridia well developed.

Reproductive system. Testes, one pair in segment 11, in which also the ciliated rosettes are placed.

Spermiducal glands lobate, with long, well-marked ducts in segment 18.

Sperm sacs attached to the anterior wall of segment 12. Ovaries attached to the anterior wall of segment 13, into which the oviducts open.

Spermathecae two pairs, in segments 8 and 9; each consists of a somewhat spherical sac, with a very short diverticulum close to the body wall.

Habitat. Narre Warren (S. Gippsland, Victoria), under logs in damp soil.

Diplorema, gen. nov.

Cryptodrilidae with the openings of the vasa deferentia on segment 18 distinct from and in front of those of the spermiducal glands. Nephridia meganephric and paired. Spermiducal glands tubular.

Diplorema fragilis, sp. n. (Figs. 4, 5, 6). Spirit specimens 1 inch long, one-sixteenth inch broad. Number of segments, about 125.

Prostomium wedged slightly (about one-third) into the peristomium.

Clitellum distinct extending over segments 12-17; a large oval glandular patch in the mid ventral part of segments 16-19. Segment 8 is noticeably glandular and swollen.

Setae arranged regularly in two pairs on each side; the setae of each pair close together; the dorsal pair about one-third of the height of the body from the ventral line.

Male pores on papillae on segment 18 at the level of the interval between the two setae of the ventral pair on each side.

Spermiducal pores on segment 18 just behind but distinct from the male pores.

Oviduct pores on segment 14.

Spermathecal pores two; intersegmental on small oval glandular patches at the level of the interval between the ventral pair of setae between segments 7 and 8, 8 and 9.

Dorsal pores present; the first between segments 8 and 9.

Alimentary canal. Gizzard in segment 5. No vascular swellings or calciferous glands. Large intestine, commencing in segment 16.

Blood vascular system. Dorsal vessel single with heart in segments 7-12.

Excretory system. Meganephric.

Reproductive system. Testes, two pairs in segments 10 and 11. Ciliated rosettes in the same segments.

Spermiducal glands long and coiled; the tube extending over segments 16-21. In the median ventral part of segments 16-20 is a large mass of glands corresponding in position to the glandular area visible externally.

Sperm sacs attached to the anterior wall of segment 12. Ovaries in segment 13; oviducts open into the same segment.

Spermathecae in segments 8 and 9. Each consists of a slightly elongate sac with a spherical diverticulum.

Habitat. Gayndah, Queensland. Found under logs in the scrub.

Megascolides, McCoy.

(1.) *Megascolides diaphanus*, sp. n. (Figs. 7, 8, 9.) Spirit specimens $1\frac{1}{4}$ inch long, $\frac{1}{8}$ inch broad.

Prostomium very slightly wedged into the peristomium.

Clitellum not distinguishable. An elongate glandular patch on the ventral surface of segment 18, and a white, rounded, glandular area ventrally on segments 20 and 21.

Setae regularly arranged; the two of each ventral pair close together; the two of the outer pair widely separate; the distance between them being equal to that between the lower of the two and the ventral pair.

Male pores on segment 18 at the level of the interval between the setae of the ventral pair.

Oviduct pores on segment 14.

Spermathecal pores two; intersegmental; at the level of the ventralmost setae between segments 6 and 7, 7 and 8.

Dorsal pores present. The first visible one between segments 12 and 13.

Nephridiopores indistinguishable externally.

Alimentary canal. Gizzard in segment 5. The walls of the canal in segment 16 are white and swollen, but there is no sharply pinched off portion as in the case of the calciferous glands of other species. Large intestine commences in segment 18.

Blood vascular system. Dorsal vessel single. Hearts in segments 8-12. A strongly marked plexus of blood vessels surrounding the alimentary canal in segments 3-7, the dorsal blood vessel breaking up in the latter.

Excretory system.¹ Two nephridia on each side of the segment.

Reproductive system. Testes, two pairs in segments 10 and 11, into which also the ciliated rosettes open.

Spermiducal glands, small, coiled, tubular, in segment 18.

Sperm sacs, racemose, attached to the posterior wall of segment 9, and the anterior of segment 12.

Ovaries in segment 13, the oviducts opening into the same segment.

Spermathecae in segments 8 and 9. Each consists of a long sac with two short tubular diverticula.

¹ In consequence of the presence of three nephridia in each segment in certain forms described by Mr. Fletcher and myself, Mr. Beddard has placed these in a new genus, to which he has given the name of *Trinephrus*. It may subsequently be advisable to erect a new genus for the reception of the present and one or two other species characterized by the presence of two nephridia on each side and to which the name *Dinephrus* may be given. Meanwhile pending an examination into their microscopic structure, which is now being conducted and the results of which will shortly be published, I have retained the species in the genus *Megascolides*.

Habitat. Near to the Ebenezer Mission Station, Mallee District, Victoria. Found in very moist earth on flats close to the River Wimmera. The body is very transparent, the nephridia and blood-vessels being visible through the skin. The flats on which the worm was found are liable to be flooded at rainy seasons but are at other times perfectly dry.

(2). **Megascolides steeli**, (Figs. 10, 11, 12). Spirit specimens 5 inches long, $\frac{3}{8}$ inch broad. Number of segments 385.

Prostomium completely dovetailed into the peristomium, marked by a median groove.

Clitellum well developed, extending over segments 13-18: incomplete ventrally on segments 17 and 18. Accessory copulatory structures; an oval patch on each side of the median ventral line at the level of the lower pair of setae between segments 17 and 18 and another slightly larger one between segments 18 and 19.

Setae regularly arranged. The two of each outer pair further apart than those of the ventral pair and about half-way up the side of the segment.

Male pores on segment 18, on a papilla at the level of the interval between the setae of the ventral pair.

Oviduct pores on segment 14.

Spermathecal pores two, intersegmental, at the level of the ventralmost setae on each side, between segments 7 and 8, 8 and 9.

Dorsal pores present, the first between segments 14 and 15.

Alimentary canal. Gizzard in segment 5. Vascular swellings in segments 12-15. Large intestine commencing in segment 18.

Blood vascular system. Dorsal vessel, together with a supra-intestinal vessel, as far back as segment 12, in which it gives off in the hinder part of the segment one branch to the dorsal vessel and one to the heart. Hearts in segments 8-12.

Excretory system, meganephric. Peptonephridia well developed.

Reproductive system. One pair of testes in segment 11. ciliated rosettes opening in the same segment.

Spermiducal glands, small, coiled, tubular, in segment 18.

Sperm sacs, racemose, attached to the anterior wall of segment 12.

Spermathecae, in segments 8 and 9. Each consists of a long sac with a very small blunt diverticulum.

Habitat.—Warragul (Victoria). Collected by Mr. T. Steel.

(3). **Megascolides eucalypti**, sp. n. (Figs. 13, 14, 15).

Spirit specimens, length $8\frac{1}{4}$ inches.

Prostomium completely dovetailed into the peristomium.

Clitellum well developed including the posterior two-thirds of segment 13, segments 14, 15, 16, 17, and the anterior two-thirds of segment 18. The anterior part (on segment 13), and the posterior (on segment 18), white and tumid, the intermediate part darker coloured. The mid ventral surface of segments 17 and 18 not included. Accessory copulatory structures in the form of two pairs of papillae at the level of the ventral setae, the front one between segments 18 and 19, the hinder one between segments 19 and 20.

Setae regularly arranged, two pairs on each side, the setae of each pair close together.

Male pores on papillae on segment 18 at the level of the interval between the ventral pair of setae. Penial setae present. Oviduct pores on segment 14.

Spermathecal pores, two pairs, intersegmental, at the level of the ventralmost setae, between segments 7 and 8, 8 and 9.

Dorsal pores present, the most anterior between segments 4 and 5, though usually the first one visible is further back, often between segments 12 and 13.

Nephridiopores on the very anterior margin of the segments at the level of the third setae on each side, the most anterior one on the anterior margin of segment 5.

Alimentary canal. Gizzard in segment 5, vascular swellings in segments 15 and 16, no true calciferous glands. Large intestine commencing in segment 19.

Blood vascular system. Dorsal vessel single. Hearts in segments 8-12. A well-marked lateral longitudinal vessel in segments 8-19 at the level of the nephridia.

Excretory system, meganephric.

Reproductive system. One pair in segment 11 into which also the ciliated rosettes open.

Spermiducal glands, coiled, tubular in segments 18.

Sperm sacs racemose, attached to the anterior wall of segment 12.

Ovaries in segment 13, into which the oviducts also open.

Spermathecae in segments 8 and 9, each consists of a sacular part with a small mammilated diverticulum at the base of the sac, and a notably long, curved duct.

Habitat. Neerim and S. Warragul, amongst the Gippsland Ranges, Victoria.

(4). *Megascolides tisdalli*, sp. n. (Figs. 16, 17, 18). Spirit specimens $3\frac{1}{3}$ inches long, $\frac{1}{4}$ inch broad.

Prostomium completely dovetailed into the peristomium. Marked by a longitudinal groove, which is continued backwards along the mid dorsal line.

Clitellum well marked, including segments 14-16 and the dorsal part of the hinder half of segment 13 and the anterior half of segment 17. Flesh coloured.

Setae distinct, arranged in two pairs regularly, except at the very hinder end (about the terminal $\frac{1}{4}$ inch), where they are very irregularly scattered, and where there may be as many as 7 on each side, though most usually only 4 are present. In front of this region the ventral pair is placed close to the ventral surface, the lower seta of the outer pair about half way up the side, and the upper seta near to the dorsal surface.

Accessory copulatory structures in the form of three oval glandular patches on the anterior edge of the mid ventral surfaces of segments 9, 10, 11, and of two oval patches between segments 16 and 17.

Male pores on segment 18; penial setae present.

Oviduct pores on segment 14.

Spermathecal pores 5 in number, intersegmental, between segments 4 and 5, 5 and 6, 6 and 7, 7 and 8, 8 and 9; at the level of the ventralmost setae.

Dorsal pores present; the first between segments 4 and 5.

Nephridiopores at the level of the third seta on each side.

Alimentary canal. Gizzard in segment 15. Vascular swellings in segments 8 to 13, the posterior ones being more marked than the anterior. Behind segment 13 the oesophagus gradually increases in size until it passes into the large intestine in segment 17. No true calciferous glands.

Blood vascular system. Dorsal vessel single, hearts in segments 7-12, the posterior three being larger than the anterior ones.

Excretory system. Meganephric.

Reproductive system. Testes, two pairs, in segments 10 and 11; ciliated rosettes opening into the same segment.

Spermiducal glands. Coiled, tubular in segments 18-21.

Sperm sacs. Long, finger shaped, attached to the posterior wall of segment 9 and the anterior of segment 12.

Ovaries in segment 13, into which the oviducts open.

Spermathecae. Five pairs, in segments 5, 6, 7, 8 and 9. Each consists of a long sac with a short tubular diverticulum.

Habitat. Walhalla, Victoria. Under logs in damp earth. The dorsal surface of the body a dark purple, the ventral dull fleshy brown; the clitellum flesh colour.

(5). *Megascolides punctatus*, sp. n. (Figs. 19, 20, 21).

Spirit specimens 5 inches long, $\frac{1}{8}$ inch broad.

Prostomium completely dovetailed into the peristomium.

Clitellum well marked, extending over segments 14-16.

Accessory copulatory structures very distinct; two pairs of prominent oval, white, glandular patches, one at the very posterior margin of segment 7 ventrally, and the other on segment 8. Small glandular patches (Fig. 19) ventrally on segments 16-21.

Setae. Two pairs on each side, regularly arranged, except at the posterior end. The upper seta of the outer pair gradually assumes a more dorsal position towards the hinder end of the body, when it comes to lie close to the mid dorsal line. At the hinder end of the body the arrangement of all the setae is irregular.

Male pores on papillae on segment 18 at the level of the interval between the two ventral setae.

Oviduct pores on an oval glandular patch on the anterior margin, ventrally, of segment 14.

Spermathecal pores, 4 pairs, intersegmental at the level of the ventralmost setae between segments 4 and 5, 5 and 6, 6 and 7, 7 and 8.

Dorsal pores present ; the first between segments 3 and 4.

Nephridiopores on the anterior margin of the segments at the level of the third seta. The first on segment 1.

Alimentary canal. Gizzard in segment 5. Vascular swellings on the oesophagus in segments 13, 14 and 15. No true calciferous glands. Large intestine, commencing in segment 18.

Blood vascular system. Dorsal vessel single; hearts in segments 5-13.

Excretory system. Meganephric. Peptonenphridia in well marked groups in segments 2, 3 and 4.

Reproductive system. Testes, two pairs, in segments 10 and 11, into which the ciliated rosettes open.

Spermiducal glands, coiled, tubular, in segments 18 and 19.

Sperm sacs. Racemose, attached to the posterior wall of segment 9 and the anterior of segment 12.

Oviducts in segment 13, into which the oviducts open.

Spermathecae, 4 pairs; each consists of a long sac and very short diverticulum.

Habitat. Warrandyte, Victoria. Under logs. On each segment in front of the clitellum just below the third seta on each side in a distinct brown spot.

- (6). *Megascolides warragulensis*, sp., n. (Figs. 22, 23, 24). Spirit specimens from $4\frac{1}{2}$ to $5\frac{1}{2}$ inches long, $\frac{1}{10}$ inch broad.

Prostomium just wedged into the peristomium with a distinct groove running back along the mid dorsal line of the latter from the apex of the wedge.

Clitellum well developed, extending over the posterior part of segment 13 and over segment 14-18. Ventrally the posterior part of segment 17 and segment 18 are not included. A glandular ridge is present ventrally between segments 18 and 19.

Setae regularly arranged, except at the very posterior end (about 16 segments). Elsewhere the setae of each pair are close together, the outer pair being placed about half way up the side of the body.

Male pores on papillae at the level of the interval between the ventral pairs of setae on segment 18.

Oviduct pores on segment 14.

Spermathecal pores, two pairs, at the level of the ventralmost setae between segments 7 and 8, 8 and 9.

Dorsal pores present; the first between segments 5 and 6.

Alimentary canal. Gizzard in segment 5; no vascular swellings or calciferous glands; large intestine commencing in segment 19.

Blood vascular system. Dorsal vessel single; hearts in segments 8-12.

Excretory system. Meganephric.

Reproductive system. Testes, two pairs, in segments 10 and 11, into which the ciliated rosettes open.

Spermiducal glands. Coiled, tubular; in segment 18; a large mass of glandular tissue in the mid ventral line between the two glands.

Sperm sacs. Racemose, attached to the anterior wall of segment 12.

Spermathecae, two pairs, each consisting of a sac with a very small mammilated diverticulum close to the body wall.

Habitat. S. Warragul, Victoria.

(7). *Megascolides volvens*, sp. n. (Figs. 25, 26, 27.)

Spirit specimen 3-4 inches long, $\frac{1}{8}$ inch broad.

Prostomium completely dovetailed into the peristomium.

Clitellum well developed, extending over segments 14-16.

Accessory copulatory structures; an oval patch between segments 17 and 18 at the level of the outer of the ventral pair of setae; another at the same level between segments 18 and 19, and another at the level of the ventralmost setae between segments 19 and 20. None of them are strongly marked.

Setae, 4 on each side, regularly arranged, except in the last 25 segments. In front of the clitellum the ventral pair are close

together, the upper two are wide apart; behind the clitellum the ventral pair are further apart, while the third seta is placed more dorsally so as to reduce the interval between it and the fourth seta. In the last 25 segments the setae are arranged very irregularly and there may be as many as 5 on each side.

Male pores on papillae on segment 18.

Oviduct pores on segment 14.

Spermathecal pores five in number; at the level of the ventral-most setae between segments 4 and 5, 5 and 6, 6 and 7, 7 and 8, 8 and 9.

Nephridiopores at the level of the third setae.

Alimentary canal. Gizzard in segment 5; vascular swellings in segments 10, 11, 12. No true calciferous glands.

Blood vascular system. Dorsal vessel single; hearts in segments 6-12.

Excretory system. Meganephric.

Reproductive system. Testes in segments 10 and 11, the ciliated rosettes opening in the same segments.

Spermiducal glands, long, coiled, tubular, extending over segments 18-27.

Sperm sacs, lobate; attached to the posterior wall of segment 9 and the anterior of segment 12.

Ovaries in segment 13, into which the oviducts open.

Spermathecae, 5 pairs, in segments 5-9, each consisting of a sac and tubular diverticulum three-quarters the length of the sac.

Habitat. Gullies amongst the ranges near the source of the River Yarra, Victoria. (Collected by Mr. C. Frost.)

Cryptodrilus, Fletcher.

(1). *Cryptodrilus shephardi* sp. n. (Figs. 28, 29, 30.)

Spirit specimens $6\frac{1}{4}$ inches long, $\frac{1}{4}$ inch broad.

Prostomium scarcely at all dovetailed into the peristomium.

Clitellum extending over segments 14-16. A deep depression (in spirit specimens) occupying the mid ventral surface of segments 17 and 18. Accessory copulatory structures in the form of small oval patches ventrally on segments 18 and 10; inconspicuous.

Setae regularly arranged; the ventral interval equal to that between the two setae of the lower pair; that between the two upper setae equal to the distance between the lower of these two and the upper of the ventral pair.

Male pores on strongly marked papillae on segment 18.

Oviduct pores on segment 14.

Spermathecal pores, three pairs at the level of the outer setae of the ventral pair between segments 6 and 7, 7 and 8, 8 and 9.

Dorsal pores present, the first between segments 6 and 7.

Alimentary canal. Gizzard in segment 5. Calciferous glands in segments 10-13. Large intestine commencing in segment 15.

Circulatory system. Hearts in segments 7-13. A supra-intestinal in addition to the dorsal vessel present in segments 9-13.

Excretory system, meganephric. A saccular structure present attached to alternate septa possibly connected with the nephridia.

Reproductive system. Testes in segments 10 and 11 into which the rosettes open.

Spermiducal glands flattened, mammilated, bilobate, each lobe with its duct and the two uniting to form a common duct.

Sperm sacs, racemose, attached to the posterior wall of segment 9 and the anterior of segment 12.

Ovaries in segment 13, into which the oviducts open.

Spermathecae. Three pairs, each consisting of a spherical sac with a long duct into the base of which open a short tubular diverticulum with a slightly swollen end. In segments 7, 8, and 9.

Habitat. Horsham, Victoria. (Collected by Mr. J. Shephard).

(2). *Cryptodrilus queenslandica*, sp. n. (Figs. 31, 32, 33).

Spirit specimens 18 inches long, $\frac{1}{2}$ inch broad.

Prostomium not at all dovetailed into the peristomium, back as far as the clitellum there are four annuli to each segment, in the clitellar and posterior region there are two to each segment.

Clitellum well marked and dark purple in colour extending over segments 13-20 but not including ventrally segments 17-20.

Setae, two pairs on each side, those of each pair close together and both pairs placed low down on the segment. Difficult to see

except in the clitellar region: behind this they appear to be somewhat irregular.

Male pores on papillae on segment 18 at the level of the interval between the setae of the ventral pair.

Oviduct pores on segment 14.

Spermathecal pores, two pairs, intersegmental between segments 7 and 8, 8 and 9, at the level of the ventralmost setae.

Dorsal pores present, the first between segments 5 and 6.

Alimentary canal. Gizzard in segment 5. In the segment in front of this the walls are dilated but not thickened. Vascular swellings in segments 14 and 15, a pair of calciferous gland in segment 16. Large intestine, commencing in segment 19.

Circulatory system. Dorsal vessel single. Hearts in segments 6-13. Two swollen lateral branches pass off on each side to the walls of the calciferous gland.

Excretory system. Plectonephric.

Reproductive system. Testes, two pairs, in segments 10 and 11 into which the rosettes open.

Spermiducal glands, small, lobate, in segment 18.

Sperm sacs, attached to the anterior wall of segment 12.

Ovaries in segment 13, into which the oviducts open.

Spermathecae, two pairs, each consisting of a somewhat spherical sac with a short, rounded diverticulum.

Habitat. Near Maryborough, Queensland. (Collected by Mr. R. A. O'Brien).

(3). **Cryptodrilus cooraniensis**, sp. n. (Figs. 34, 35, 36).

Spirit specimens $2\frac{3}{4}$ to 3 inches in length, $\frac{1}{8}$ inch broad.

Number of segments about 142.

Prostomium completely dovetailed into the peristomium.

Clitellum well marked, extending over segments 14-16. Accessory copulatory structures in the form of glandular patches ventrally on segments 17 and 18; one pair at the level of the interval between the ventral pair of setae on segment 17, and three median patches on segments 17, 18, and 19.

Setae quite regular along the whole length of the body: the ventral pair on each side near to the mid line and close together;

the same width as that between the two of each of these pairs intervenes between the outer of them and the lower of the upper pair, the upper seta being placed half-way between the former and the mid dorsal line.

Male pores on segment 18 on papillae at the level of the interval between the setae of the lower pair.

Oviduct pores on segment 14 on an oval glandular patch.

Spermathecal pores, two pairs, intersegmentally at the level of the ventralmost setae between segments 7 and 8, 8 and 9.

Dorsal pores present ; the first between segments 5 and 6.

Nephridiopores clearly marked ; the first on the anterior margin of the second segment at the level of the uppermost seta ; the pores on segments 3 and 4 occupy the same relative position ; those on segments 5, 6, and 7 are at the level of the third seta from the ventral surface, that in segment 8 at the level of the uppermost, that in segment 9 at the level of the second seta from the ventral surface, and so on alternately down the length of the body.

Alimentary canal. Gizzard in segment 5 ; calciferous glands in segments 11, 12, and 13. Large intestine, commencing in segment 15.

Circulatory system. Dorsal vessel single ; hearts in segment 8-13.

Excretory system. Meganephric.

Reproductive system. Testes, two pairs in segments 10 and 11, into which the rosettes open.

Spermiducal glands. Flattened, bilobed, in segment 18 ; sometimes the gland is not divided into two lobes.

Sperm sacs, lobulate, attached to the posterior wall of segment 9 and the anterior of segment 13. The testes in segments 10 and 11 are enveloped in sacs (sperm reservoirs), which may, when mature, include the rosettes and wrap round the intestine, filling up all the space in the segment.

Ovaries in segment 13, into which the oviducts open.

Spermathecae, two pairs, in segments 8 and 9, each with a spherical sac and tubular diverticulum.

Habitat. Cooran, Queensland. Under logs in palm scrub.

Fletcherodrillus, Michaelsen.

(1). *Fletcherodrillus unicus*, Fl., var. *major*.

Whilst collecting in the scrub near to Gayndah, in Queensland, I met frequently with normal specimens of *Fletcherodrillus unicus*, burrowing under bark and logs of wood. All of these were of the usual form, with relatively short firm bodies, not exceeding some 6 inches in length, though quite mature. When digging, however, in the same locality, round the base of some *Sterculia* trees, I met, at a depth of some two or three feet, with what appeared to be a very distinct species. The body was always found coiled into a characteristic knot in an enlargement in the burrow. It was a ruddy purple in colour, very soft, and reached normally the length of two feet or even longer when alive. Upon examining its structure, it proves to be identical with that of the normal *Fl. unicus*, found in the same spot. As the external form and method of burrowing of the two are so distinct, I have distinguished the large, deep burrowing form as a variety.

Megascolex, Templeton.

(1). *Megascolex andersoni*, sp. n. (Figs. 37, 38, 39).

Spirit specimen $3\frac{1}{4}$ to 5 inches long, $\frac{3}{8}$ inch broad.

Prostomium about three-quarters dovetailed into the peristomium.

Peristomium with a well marked median ventral cleft.

Clitellum well marked, extending over segments 14-17. The ventral surfaces of segments 10 and 11 are marked by prominent white, glandular ridges. Accessory copulatory structures in the form of two white glandular ridges ventrally on segments 19 and 20.

Setae in front of the clitellum, 14-19 on each side. In the middle of the body, 12-14, and at the posterior end, 18.

Male pores or papillae on segment 18, at the level of the ventralmost setae. Each papilla is at the ventral end of a swollen ridge on segment 18.

Oviduct pores on segment 14.

Spermathecal pores. Three pairs between segments 6 and 7, 7 and 8, 8 and 9, just dorsal to the level of the ventralmost setae.

Dorsal pores present, the first between segments 4 and 5.

Alimentary canal. Gizzard in segment 5. Calciferous glands in segments 10, 11, 12. Large intestine, commencing in segment 15.

Circulatory system. Dorsal vessel single, with a sub-dorsal vessel in segments 8-12. Heart in segments 8-12.

Excretory system. Plectonephric.

Reproductive system. Testes in segments 10 and 11, into which the rosettes open.

Spermiducal glands small, flattened, lobate, in segment 18.

Sperm sacs lobate, attached to the posterior wall of segment 9 and the anterior of segment 12.

Ovaries in segment 13, into which the oviducts open.

Spermathecae. Three pairs in segments 7, 8 and 9, each with an elongate sac and tubular diverticulum nearly as long as the sac.

Habitat. Gerangamete, Victoria.

(2). *Megascolex larpentensis*, sp. n. (Figs. 40, 41, 42).

Spirit specimens $2\frac{1}{2}$ inches long, $\frac{1}{16}$ inch broad.

Prostomium completely dovetailed into the peristomium. Marked by a median cleft.

Peristomium with a median longitudinal cleft.

Clitellum extending over segments 14-16 and the anterior part of 17.

Setae in front of clitellum, 14-15 on each side. In the middle of the body as many as 17, and at the posterior end about 12.

Male pores on a small papillae between the ventral pair of setae on each side.

Oviducal pores on segment 14.

Spermathecal pores between segments 4 and 5, 5 and 6, 6 and 7, 7 and 8, 8 and 9, at the level of the interval between the two ventral setae on each side.

Dorsal pores present. The first between segments 3 and 4.

Alimentary canal. Gizzard in segment 5. Calciferous glands in segments 10, 11, and 12. Large intestine, commencing in segment 15.

Circulatory system. Dorsal vessel single; hearts in segments 7-12.

Excretory system. Plectonephric.

Reproductive system. Testes, two pairs in segments 10 and 11, into which the rosettes open.

Spermiducal glands, small flattened, with a larger and smaller lobe ; in segment 18.

Sperm sacs, not visible.

Ovaries in segment 13, into which the oviduct opens.

Spermathecae, five pairs, in segments 5, 6, 7, 8, and 9, each consisting of a sac with a tubular diverticulum longer than the sac.

Habitat. Gerangamete, Victoria.

(3). *Megascolex fardyi*, sp. n. (Figs. 43, 44, 45). Spirit specimens 1-2 inches long, $\frac{1}{16}$ inch broad.

Prostomium completely dovetailed into the peristomium.

Peristomium with a median ventral cleft.

Clitellum extending over segments 15-18 and the posterior part of segment 14. Accessory copulatory structures ; two pairs of white oval glandular patches, on which the three ventral setae are inserted on segments 10 and 11 ; a pair of glandular patches ventrally on segment 17, and another on segment 19.

Setae, 10-12 on each side in front of the clitellum ; 12 behind the clitellum.

Male pores on papillae between the ventral pair of setae on each side in segment 18.

Oviduct pores on segment 14.

Spermathecal pores, 4 pairs at the level of the interval between the two ventral setae on each side between segments 5 and 6, 6 and 7, 7 and 8, 8 and 9.

Dorsal pores present, the first between segments 4 and 5.

Alimentary canal. Gizzard in segment 5 ; three pairs of calciferous glands in segments 10, 11, 12 ; large intestine, commencing in segment 17.

Circulatory system. Dorsal vessel single ; hearts in segments 7-12.

Excretory system. Plectonephric.

Reproductive system, 2 pairs of testes, in segments 10 and 11, into which the rosettes open.

Spermiducal glands, small, flattened, lobulate, in segment 18.

Sperm sacs attached to the posterior wall of segment 9 and the anterior of segment 12 ; lobulate.

Ovaries in segment 13, into which the oviducts open.

Spermathecae, four pairs in segments 6, 7, 8, and 9, each consisting of a small sac and slightly dilated diverticulum.

Habitat. Heathcote, Victoria. Under logs and stones. (Collected by myself and Mr. J. H. Fardy).

(4). **Megascolex pritchardi**, n. sp. (Figs. 46, 47, 48).

Spirit specimen $2\frac{1}{4}$ inches long, $\frac{1}{16}$ inch broad.

Prostomium wedged into the peristomium, about one-half.

Clitellum extending over segments 14-17. Accessory copulatory structures slightly developed, a pair of papillae between segments 18 and 19 and a pair between segments 19 and 20.

Setae comparatively few in number, 6-7 on each side of the segments in front of the clitellum and 6-8 in those behind.

Male pores on papillae in segment 18 at the level of the interval between the two ventral setae of each side.

Oviduct pores on segment 14.

Spermathecal pores. Two pairs, between segments 4 and 5, 5 and 6, at the level of the interval between the two ventral setae on each side.

Dorsal pores, the first between segments 4 and 5.

Alimentary canal. Gizzard in segment 5 ; large intestine, commencing in segment 19 ; no vascular swellings or calciferous glands.

Circulatory system. Dorsal vessel single ; hearts in segments 6-12.

Excretory system. Meganephric.

Reproductive system. Testes, two pairs in segments 10 and 11.

Spermiducal glands in segment 18 ; flattened and lobulate, with a long coiled duct.

Sperm sacs, lobulate, attached to the posterior wall of segment 9 and the anterior wall of segments 12 and 14.

Ovaries in segment 13, into which the oviducts open.

Spermathecae, two pairs, in segments 5 and 6 ; each consisting of a sac with a small, bluntly rounded diverticulum.

Habitat. Mornington, Victoria. (Collected by Mr G. B. Pritchard.)

- (5). *Megascolex montanus*, sp. n. (Figs. 49, 50, 51).
Spirit specimens $2\frac{1}{4}$ inches long, $\frac{1}{8}$ inch broad; number of segments 115.

Prostomium about three-quarters dovetailed into the peristomium. Marked by a median groove.

Clitellum well marked, extending over segments 13-17. Accessory copulatory structures in the form of two papillae on the median ventral surface of segments 19 and 20.

Setae, 10 on each side of the segments in front of the clitellum; 8-10 on each side of the segments behind.

Male pores on papillae on segment 18, at the level of the interval between the two ventral setae on each side.

Oviduct pores on segment 14.

Spermathecal pores, two pairs, between segments 7 and 8, 8 and 9, at the level of the interval between the two ventral setae on each side.

Dorsal pores, the first between segments 4 and 5.

Alimentary canal. Gizzard in segment 5. Calciferous glands in segments 10, 11 and 12. Large intestine, commencing in segment 16.

Circulatory system. Dorsal vessel single. Hearts in segments 7-12.

Excretory system, plectonephric.

Reproductive system. Testes, two pairs in segments 10 and 11, with which also the ciliated rosettes open.

Spermiducal glands flattened, small, lobulate, in segment 18.

Sperm sacs racemose, attached to the posterior wall of segment 9, and the anterior of segment 12.

Ovaries in segment 13 into which the oviducts open.

Spermathecae, two pairs, in segments 8 and 9. Each consisting of a sac with a tubular diverticulum nearly as long as the sac.

Habitat. Mount Baw Baw, Victoria. (Collected by Mr. C. Frost).

- (6). *Megascolex lobulatus*, sp. n. (Figs. 52, 53, 54).
Spirit specimens $2\frac{1}{2}$ inches long, $\frac{1}{8}$ inch broad.

Prostomium about three-quarters dovetailed into the peristomium, with a median groove.

Peristomium with a median ventral groove.

Clitellum extending over segments 14-16, and the posterior part of 13, white and glandular in appearance. Accessory copulatory structures well developed. Median oval patches on the mid ventral surfaces of segments 7, 8 and 9, a pair at the level of the interval between the two ventral setae of each side in segments 10; a pair at the level of the ventralmost setae in segment 17; a mid ventral one in segment 19, and larger mid ventral ones in segments 20, 21 and 22.

Setae, 8-11 on each side in the segments in front of the clitellum, 12 on each side in the middle and posterior part of the body.

Male pores on papillae in segment 18 at the level of the ventralmost setae.

Oviduct pores on segment 14.

Spermathecal pores, five pairs, between segments 4 and 5, 5 and 6, 6 and 7, 7 and 8, 8 and 9, at the level of the interval between the ventral pair of setae on each side.

Dorsal pores, the first between segments 4 and 5.

Alimentary canal. Gizzard in segment 5; calciferous glands in segments 10, 11, and 12; large intestine, commencing in segment 16.

Circulatory system. Dorsal vessel single; a lateral longitudinal vessel on each side in the region of the oesophagus as far back as the calciferous glands; hearts in segments 7-12.

Excretory system. Plectonephric.

Reproductive system. Testes, two pairs in segments 10 and 11, into which, also, the ciliated rosettes open.

Spermiducal glands. Flattened, bilobed, in segment 18.

Sperm sacs. Racemose, attached to the posterior wall of segment 9, and the anterior of segment 12.

Ovaries in segment 13, into which the oviducts open.

Spermathecae. Five pairs, in segments 5-9, each consisting of a sac with a tubular diverticulum nearly as long as the sac.

Habitat. Nar Nar Goon, Victoria.

(7). **Megascolex minor**, sp. n. (Figs. 55, 56, 57). Spirit specimens $1\frac{1}{2}$ to 3 inches long, $\frac{1}{8}$ inch broad.

Prostomium about one-half dovetailed into the peristomium.

Clitellum extending over segments 13-17, though only the posterior part of 13 may be included.

Accessory copulatory structures. Glandular patches ventrally on segments 10, 11 and 12.

Setae with a distinct dorsal and ventral break, 12-16 on each side.

Male pores or papillae on segment 18, at the level of the interval between the two ventral setae on each side.

Oviduct pores on segment 14, very close to the mid ventral line on a white glandular area.

Spermathecal pores. Two pairs, between segments 7 and 8, 8 and 9, at the level of the second seta on each side.

Dorsal pore, the first between segments 5 and 6.

Alimentary canal. Gizzard in segment 3, vascular swellings in segments 8, 9 and 10. No true calciferous glands. Large intestine, beginning in segment 16.

Circulatory system. Single dorsal vessel. Hearts in segments 5-12, those in segments 5-9 smaller than the three last pairs.

Excretory system. Plectonephric.

Reproductive system. Testes, two pairs, in segments 10 and 11, into which the ciliated rosettes open.

Spermiducal glands. Flattened, bilobed, in segment 18, or may also press forward into segment 17.

Sperm sacs. Racemose, attached to the posterior wall of segment 9, and the anterior of segment 12. Sperm reservoirs may be present in segments 10 and 11, but these do not enclose the rosettes.

Ovaries in segment 14, into which the oviducts open.

Spermathecae, two pairs, in segments 8 and 9; each consists of a sac and tubular diverticulum swollen at its end.

Habitat. Cooran and Gayndah, Queensland.

(8). *Megascolex illidgei*, sp. n. (Figs. 58, 59, 60.) Spirit specimens $2\frac{1}{2}$ inches long, $\frac{1}{8}$ inch broad; the body containing about 88 segments.

Prostomium about one-half dovetailed into the peristomium.

Clitellum, extending over segments 14-16. Accessory copulatory structures, well developed; small patches between the level of the fourth and fifth setae on each side ventrally, on segments

7 and 8; median ventral patches on segments 10-12, and on segment 16; a larger ventral one on segment 17; a pair on segment 19 and a pair on segment 20.

Setae, the dorsal and ventral break, though present is only small. In front of clitellum 14-15 setae on each side.

Male pores on papillae on segment 18.

Oviduct pores on an oval glandular patch on segment 14, close to the mid ventral line.

Spermathecal pores, two pairs, on little oval patches at the level of the interval between the fifth and sixth setae on each side between segments 7 and 8, 8 and 9.

Dorsal pores, the first between segments 3 and 4.

Alimentary canal. Gizzard in segment 5; vascular swellings in segments 10, 11, 12 and 13; no true calciferous glands present; large intestine, commencing in segment 16.

Circulatory system. Single dorsal vessel; hearts in segments 8-13.

Excretory system. Plectonephric.

Reproductive system. Testes, two pairs, in segments 10 and 11, into which the ciliated rosettes open.

Spermiducal glands, flattened, bilobed, in segment 18.

Sperm sacs, racemose, attached to the posterior wall of segment 9 and the anterior of segment 12.

Ovaries in segment 13, into which the oviducts open.

Spermathecae, two pairs, in segments 8 and 9; each consisting of a tubular sac with a diverticulum about three-quarters the length of the sac.

Habitat. Cooran, Queensland.

(9). *Megascolex terangiensis*, sp. n.

Prostomium about one-half dovetailed into the peristomium.

Clitellum extending over segments 14-16. Accessory copulatory structures, a pair of glandular patches at the level of the interval between the two ventral setae on each side on segment 17, a small patch just in front of the male opening on each side.

Setae, 7-8 on each side in front of the clitellum.

Male openings on prominent papillae on segment 18 at the level of the interval between the second and third setae.

Oviduct opening on segments 14.

Spermathecal pores close to the mid dorsal line (dorsal of all the setae) between segments 5 and 6, 6 and 7, 7 and 8, 8 and 9.

Alimentary canal, circulatory system, excretory system, and reproductive system similar to those of *M. dorsalis*, except that the spermiducal glands extend over more segments (18-21).

Habitat. Terang, Victoria. The species, as will be seen, is closely allied to *M. dorsalis*, but is very clearly distinct from this and all other species by the unique position (so far as yet known) of the openings of the spermathecal glands.

Diporochaeta, Beddard.

(1). *Diporochaeta davallia*, sp. n. (Figs. 61, 62, 63).

Spirit specimens 8 inches long, $\frac{3}{8}$ inches broad; number of segments 158.

Prostomium completely dovetailed into the peristomium.

Clitellum extending over segments 13-17, but not including the ventral parts of segments 16 and 17. Accessory copulatory structures well developed, a pair of glandular patches at the level of the two ventral setae on each, between segments 9 and 10, 15 and 16, 16 and 17, 19 and 20, 20 and 21, 21 and 22, a pair at the level of the most ventral seta on each side, between segments 18 and 19, a pair at the level of the interval between the second and third setae, each side between segments 17 and 18.

Setae. Five on each side in the anterior segments, 9 in segment 18, 10-12 in the next few segments, 14 in the middle of the body, and 12-14 at the posterior end.

Male pores, on segment 18 at the level of the interval between the two ventral setae of each side.

Oviduct pores on segment 14.

Spermathecal pores, 5 pairs, at the level of the most ventral seta of each side, between segments 4 and 5, 5 and 6, 6 and 7, 7 and 8, 8 and 9.

Dorsal pores, the first between segments 3 and 4.

Alimentary canal. Gizzard in segment 5; a small vascular swelling in segment 13 and larger ones in segments 14 and 15; no true calciferous glands; large intestine, commencing in segment 17.

Circulatory system. Single dorsal vessel; hearts in segments 7-12.

Excretory system. Meganephric; the nephridiopores at the level of the interval between the fourth and fifth seta from the ventral surface.

Reproductive system. Two pairs of testes, in segments 10 and 11, into which the ciliated rosettes open.

Spermiducal glands, small, coiled, tubular, in segment 18.

Sperm sacs, 2 pairs of lobate ones attached to the anterior wall of segments 12 and 13; one pair of racemose ones attached to the posterior wall of segment 13.

Ovaries in segment 13, into which the oviducts open.

Spermathecae, 5 pairs, in segments 5-9, each consisting of a swollen sac and short diverticulum.

Habitat. Fern Tree Gully, Victoria.

(2). *Diporochaeta mediocincta*, sp. n. (Figs. 64, 65, 66).

Spirit specimens $2\frac{1}{2}$ inches long.

Prostomium slightly dovetailed into peristomium; a distinct median groove both dorsally and ventrally on the peristomium.

Clitellum distinct, extending over segments 14-16. Accessory copulatory structures; a pair of glandular patches ventrally at the level of the second, third, and fourth setae on each side ventrally between segments 17 and 18 and another pair between segments 18 and 19.

Setae, 14-16 on each side in the segments in front of the clitellum; 20-24 on each side behind the clitellum; dorsal and ventral break distinct.

Male pores on segment 18 on papillae at the level of the interval between the two ventral setae on each side.

Oviduct pores on segment 14.

Spermathecal pores, 4 pairs, at the level of the interval between the two ventral setae on each side between segments 5 and 6, 6 and 7, 7 and 8, 8 and 9.

Dorsal pores, the first between segments 5 and 6.

Alimentary canal. Gizzard in segment 5; vascular swellings in segments 12-16; no true calciferous glands; large intestine in segment 20.

Circulatory system. Single dorsal vessel ; hearts in segments 6-12.

Excretory system. Meganephric ; external openings at the level of the tenth seta from the ventral surface on each side ; peptonephridia present.

Reproductive system. Testes, two pairs, in segments 10 and 11, into which the ciliated rosettes open.

Spermiducal glands, tubular, in segment 18.

Sperm sacs, racemose, attached to the posterior wall of segment 9 and the anterior of segment 12.

Ovaries in segment 13, into which also the oviducts open.

Spermathecae, four pairs, in segments 6, 7, 8, and 9, each consisting of a sac swollen at its end and a tubular diverticulum half the length of the sac.

Habitat. S. Warragul, Gippsland. When alive the worm is dull reddish in colour with the clitellum well marked and cream coloured. The body is flattened out from above downwards.

(3). *Diporochaeta lindti*, sp. n. (Figs. 67, 68, 69). Spirit specimens 3 inches long, $\frac{1}{8}$ inch broad ; number of segments 126.

Prostomium completely dovetailed into the peristomium, which has a median ventral furrow.

Clitellum extending over segments 14-16 and the posterior part of 13 ; accessory copulatory structures ; a pair of glandular patches in the median, anterior and posterior surfaces of segments 6, 7, and 8 and in the median anterior surfaces of segments 9 and 10 ; larger ventral patches between segments 17 and 18, 18 and 19.

Setae, from 6-10 on each side in front of the clitellum, obliterated in the clitellum, behind this usually 12 on each side, at the posterior end the ventral break is very small indeed.

Male pores on segment 18 at the level of the interval between the two ventral setae on each side.

Oviduct pores on segment 14.

Spermathecal pores, 5 pairs, at the level of the interval between the two ventral setae on each side between segments 4 and 5, 5 and 6, 6 and 7, 7 and 8, 8 and 9.

Dorsal pores, the first between segments 3 and 4.

Alimentary canal. Gizzard in segment 5; vascular swellings in segments 10-12; no true calciferous glands present; large intestine, commencing in segment 17; a white, swollen, twisted part in segment 15.

Circulatory system. Dorsal vessel single; hearts in segments 6-12.

Excretory system. Meganephric; the nephridiopores at the level of the sixth seta from the ventral surface.

Reproductive system. Two pairs of testes, in segments 10 and 11, into which the ciliated rosettes open.

Spermiducal glands, small, coiled, tubular, in segment 18.

Sperm sacs, racemose, attached to the posterior wall of segment 9 and the anterior of segment 12.

Ovaries in segment 13, into which the oviducts open.

Spermathecae, 5 pairs, in segments 5-9, each consisting of a spherical sac with a duct to which a small diverticulum with a swollen end is attached.

Habitat. Blacks Spur, Victoria. Under logs at an elevation of 2000 feet.

(4). *Diporochaeta euzona*, sp. n. (Figs. 70, 71, 72.) Spirit specimens 6 inches long, $\frac{1}{2}$ inch broad.

Prostomium scarcely at all dovetailed into the peristomium.

Clitellum extending over segments 15-19 and the posterior part of segment 14, except in the mid ventral area of segments 17-19 and the posterior part of segment 16. Accessory copulatory structures in the form of elongate, oval, glandular patches ventrally between segments 17 and 18, 18 and 19, 19 and 20, 20 and 21, the patches being united by ridges across the mid ventral line.

Setae, 18-20 on each side behind the clitellum; about 15 on each side in front of the clitellum; distinct dorsal and ventral break, the latter irregular.

Male pores on papillae on segment 18, at the level of the interval between the two ventral setae on each side; the two papillae united by a median ridge.

Oviduct pores on segment 14.

Spermathecal pores, 5 pairs, at the level of the ventral setae on each side, between segments 4 and 5, 5 and 6, 6 and 7, 7 and 8, 8 and 9.

Dorsal pores, the first between segments 3 and 4.

Alimentary canal. Gizzard in segment 5; vascular swellings in segment 13; no true calciferous glands; large intestine, commencing in segment 17.

Circulatory system. Dorsal vessel single; hearts in segments 6-12; a lateral, longitudinal vessel in segments 6-9, breaking up anteriorly into branches over the gizzard.

Excretory system. Meganephric; the nephridiopores at the level of the 12th or the 13th setae from the ventral surface on each side.

Reproductive system. Testes, two pairs, in segments 10 and 11, into which the ciliated rosettes open.

Spermiducal glands, tubular, coiled, in segments 18-22.

Sperm sacs, lobate, attached to the posterior wall of segment 9 and the anterior of segments 12 and 13.

Ovaries in segment 13, into which the oviducts open.

Spermathecae, 5 pairs, in segments 5-9, each consisting of a swollen sac and a very short, tubular diverticulum.

Habitat. Warrandyte, Victoria. (Collected by Mr. C. M. Maplestone).

(5). *Diporochoeta telopea*, sp. n. (Figs. 73, 74, 75). Spirit specimens 2 inches long, nearly $\frac{1}{3}$ inch broad.

Prostomium about three-quarters dovetailed into the peristomium.

Clitellum extending over segments 14-16 and the posterior part of 13. Accessory copulatory structures; a pair of glandular patches ventrally between segments 16 and 17, 17 and 18, 18 and 19.

Setae, 8 or 9 on each side in front of the clitellum; 12 on each side in the middle of the body and 16-18 posteriorly.

Male pores on papillae, on segment 18, at the level of the second setae from the mid ventral line.

Oviduct pores on segment 14.

Dorsal pores present; difficult to see; the first between segments 4 and 5 (?).

Spermathecal pores, 5 pairs, at the level of the ventral seta on each side, between segment 4 and 5, 5 and 6, 6 and 7, 7 and 8, 8 and 9.

Alimentary canal. Gizzard in segment 5; vascular swellings in segments 14-16; no true calciferous glands; large intestine, commencing in segment 17.

Circulatory system. Single dorsal vessel; hearts in segments 6-12.

Excretory system. Meganephric.

Reproductive system. Testes, two pairs, in segments 10 and 11, into which also the ciliated rosettes open.

Spermiducal glands, lobate, attached to the posterior wall of segment 9 and the anterior of 12; sperm reservoirs in segments 10 and 11.

Ovaries in segment 13, into which the oviducts open.

Spermathecae, 5 pairs, in segments 5-9, each consisting of an elongate, tubular sac and a tubular diverticulum, which increases in absolute and relative length in the posterior spermathecae.

Habitat. Waratah Bay, Victoria. (Collected by Mr. W. Mann).

(6). *Diporochoeta notabilis*, sp. n. (Figs. 76, 77, 78).

Spirit specimens $2\frac{1}{4}$ inches long, $\frac{1}{8}$ inch broad.

Prostomium about three-quarters dovetailed into the peristomium.

Clitellum extending over segments 14-16; accessory copulatory structures; a glandular patch on the anterior part of segment 10, ventrally at the level of the interval between the two ventral setae on each side; glandular patches ventrally on segments 17 and 19.

Setae, 10-12 on each side all along the body.

Male pores on papillae on segment 18 at the level of the interval between the two ventral setae on each side.

Spermathecal pores, one pair, at the level of the interval between the two ventral setae on each side, between segments 7 and 8.

Dorsal pores, the first between segments 4 and 5.

Alimentary canal. Gizzard in segment 5; true calciferous glands in segments 10-13; large intestine, commencing in segment 16.

Circulatory system. Dorsal vessel single; hearts in segments 7-12.

Excretory system. Plectonephric; peptonephridia present.

Reproductive system. Two pairs of testes in segments 10 and 11, into which the ciliated rosettes open.

Spermiducal glands, coiled, tubular, in segment 18.

Sperm sacs, racemose, attached to the posterior wall of segment 9 and the anterior of segment 12.

Ovaries in segment 13, into which the oviducts open.

Spermathecae, a single pair in segment 8, consisting of a long tubular sac and a long tubular diverticulum.

Habitat. Dimboola, Victoria.

(7). *Diporochoeta richardi*, sp. n. (Figs. 79, 80, 81).

Spirit specimens $3\frac{1}{2}$ inches long, $\frac{1}{8}$ inch broad; number of segments about 122.

Prostomium about two-thirds dovetailed into the peristomium and marked with a median groove.

Clitellum extending over segments 14-16 and the posterior part of 13; incomplete ventrally.

Setae, in front of the clitellum 7-9 on each side; in the middle of the body 10, and posteriorly 13-14; dorsal and ventral break distinct.

Male pores on indistinctly marked papillae on segment 18.

Oviduct pores on segment 14.

Spermathecal pores, 5 pairs, at the level of the ventral setae on each side between segments 4 and 5, 5 and 6, 6 and 7, 7 and 8, 8 and 9.

Dorsal pores, the first between segments 4 and 5.

Alimentary canal. Gizzard in segment 5; vascular swellings in segments 9-14; no true calciferous glands; large intestine, commencing in segment 16.

Circulatory system. Dorsal vessel single, extending far forwards into the second or third segment; subdorsal vessel in segments 9-12; hearts in segments 8-12.

Excretory system. Meganephric. Peptonephridia present.

Reproductive system. Two of pairs testes in segments 10 and 11, into which the ciliated rosettes open.

Spermiducal glands, coiled, tubular, in segments 18 and 19, the duct long and coiled.

Sperm sacs, lobate, finger-shaped, attached to the posterior wall of segment 9 and the anterior of segment 12.

Ovaries in segment 13, into which the oviducts open.

Spermathecae, five pairs in segments 5-9.

Habitat. Loch, Gippsland, Victoria.

(8). *Diporochaeta nemoralis*, sp. n. (Figs. 82, 83, 84).

Spirit specimens $2\frac{1}{2}$ to 3 inches long, $\frac{1}{8}$ inch broad.

Prostomium about half dovetailed into the peristomium.

Clitellum extending over segments 14-16 and the posterior part of 13, tumid, almost concealing the setae, and quite concealing the dorsal pores. Accessory copulatory structures, glandular patches at the level of the interval between the two ventral setae on each side between segments 16 and 17 and at the same level on the anterior part of segment 19.

Setae, usual number in front of the clitellum ten on each side; in the middle of the body 11-12, at the posterior end vary much, 11-21: in this part, odd ones may lie very close to the mid dorsal line so that the dorsal break is very irregular and may be scarcely noticeable: elsewhere the dorsal and ventral breaks are distinct.

Male pores on papillae, at the level of the interval between the second and third setae on each side.

Oviduct pores on segment 14.

Spermathecal pores. Five pairs, at the level of the interval between the third and fourth setae on each side from the ventral surface, between segments 4 and 4, 5 and 6, 6 and 7, 7 and 8, 8 and 9.

Dorsal pores. The first between segments 4 and 5.

Alimentary canal. Gizzard in segment 5, no vascular swellings or calciferous glands, large intestine commencing in segment 17.

Circulatory system. Single dorsal vessel, hearts in segments 7-12.

Excretory system. Meganephric.

Reproductive system. Two pairs testes in segments 10 and 11, into which the ciliated rosettes open.

Spermiducal glands, coiled, tubular, in segments 18-21.

Sperm sacs, lobate, attached to the posterior wall of segment 9 and the anterior of segment 12.

Ovaries in segment 13, into which the oviducts open.

Spermathecae, five pairs in segments 5-9, each consisting of a spherical sac with tubular duct and a short tubular diverticulum.

Habitat. Neerim, Victoria. Under logs in the gum-tree forests.

(9). *Diporochoeta manni*, sp. n. (Figs. 85, 86, 87). Spirit specimens $2\frac{1}{2}$ inches long, nearly $\frac{1}{4}$ inch broad.

Prostomium about half dovetailed into the peristomium.

Clitellum extending over segments 14-16. Accessory copulatory structures, glandular patches at the level of the ventralmost seta on each side on the anterior part of segments 6-9.

Setae. Fourteen on the first setigerous segment, 14-17 in the segments in front of the clitellum, 16-17 in the clitellar segments, 20 in the middle of the body.

Male pores on slight papillae on segment 18 at the level of the interval between the two most ventral setae.

Oviduct pores on segment 14.

Spermathecal pores at the level of the ventralmost setae, between segments 4 and 5, 5 and 6, 6 and 6, 7 and 8, 8 and 9.

Dorsal pores. The first between segments 5 and 6.

Alimentary canal. Gizzard in segment 5, remarkable racemose glands in segments 5-9, one pair in each segment. The duct appears to enter the canal in the segment in front of that in which the gland lies. Vascular swellings in segments 12-16, large intestine commencing in segment 19.

Circulatory system. Single dorsal vessel; a sub-dorsal vessel in segments 8-13; hearts in segments 6-12; in close relationship with the glands of the alimentary canal.

Excretory system. Meganephric. The nephridiopores distinct, the first being placed on the second segment. In the front of the clitellum they lie at the level of the eleventh setae, in the middle

of the body at the level of the fourteenth setae, and in the last 20 segments close to the dorsal line; in the last 12 segments they correspond in position with the most dorsal setae.

Reproductive system. Two pairs testes in segments 10 and 11, into which the ciliated rosettes open.

Spermiducal glands, coiled, tubular, in segments 18 and 19.

Sperm sacs, racemose, attached to the posterior wall of segment 9 and the anterior of segment 12.

Ovaries in segment 13, into which the oviducts open.

Spermathecae, five pairs, in segments 5-9, each consisting of a spherical sac with a tubular diverticulum.

Habitat. S. Warragul, Gippsland, Victoria. (Collected by Mr. W. Mann.)

- (10). **Diporochoeta arnoldi**, sp. n. (Figs. 88, 89, 90).
Spirit specimens $2\frac{1}{2}$ inches long, $\frac{1}{8}$ inch broad; number of segments 120.

Prostomium completely dovetailed into the peristomium, which has a median ventral furrow.

Clitellum extending over segments 14-16; accessory copulatory structures; oval glandular patches in the mid ventral line between segments 7 and 8, 8 and 9, 9 and 10; a similar one between segments 17 and 18.

Setae, in front of and in clitellar region 10-11 on each side, middle of body 12, posterior part 12-14; two ventral rows on each side very straight; distinct dorsal and ventral break.

Male pores, on papillae on segment 18 at the level of the two ventral setae on each side.

Oviduct pores on segment 14.

Spermathecal pores, 5 pairs, at the level of the ventralmost setae on each side, between segments 4 and 5, 5 and 6, 6 and 7, 7 and 8, 8 and 9.

Dorsal pores, the first between segments 4 and 5.

Alimentary canal. Gizzard in segment 5; no vascular swellings or true calciferous glands; large intestine, commencing in segment 18.

Circulatory system. Single dorsal vessel; sub-dorsal vessel in segments 9-13; hearts in segments 9-12.

Excretory system. Meganephric; the nephridiopores at the level of the sixth setae; the first on the third segment.

Reproductive system. Two pairs of testes in segments 10 and 11, into which the ciliated rosettes open.

Spermiducal glands, coiled, tubular, in segments 18 and 19.

Sperm sacs, lobate, attached to the anterior walls of segments 11 and 12.

Ovaries in segment 13, into which the oviduct opens.

Spermathecae, 5 pairs, in segments 5-9, each consisting of a tubular sac and short tubular diverticulum.

Habitat. Mount Arnold, near Marysville, Victoria; under logs and sheets of bark on a small swamp.

(11). *Diporochoeta frosti*, sp. n. (Figs. 91, 92, 93).

Spirit specimens $1\frac{3}{4}$ inches long, $\frac{1}{8}$ inch broad.

Prostomium completely dovetailed into the peristomium, which has a median ventral furrow.

Clitellum extending over segments 14-16; dark purple tumid; accessory copulatory structures; oval glandular patches in the mid ventral line between segments 5 and 6, 6 and 7, 7 and 8, 8 and 9; three in the mid ventral line between segments 16 and 17, 17 and 18, 18 and 19, and two in the mid ventral line between segments 19 and 20.

Setae, 12 on each side in front of the clitellum, 13-14 in the middle of the body, and 14 posteriorly; dorsal and ventral break distinct.

Male pores on papillae on segment 18 at the level of the interval between the two ventral setae on each side.

Oviduct pores on segment 14.

Spermathecal pores, 4 pairs, opening just dorsal at the level of the ventralmost setae between segments 5 and 6, 6 and 7, 7 and 8, 8 and 9.

Dorsal pores, the first between segments 4 and 5.

Alimentary canal. Gizzard in segment 5; no vascular swellings or calciferous glands; a curious, large, swollen, white coil in segment 15; large intestine, commencing in segment 18.

Circulatory system. Dorsal vessel single; hearts in segments 8-12.

Excretory system. Meganephric; the nephridiopores at the level of the seventh seta from the ventral surface; the first on the third segment.

Reproductive system. Two pairs of testes in segments 10 and 11, into which open the ciliated rosettes.

Spermiducal glands, coiled, tubular, in segments 18 and 19.

Sperm sacs, racemose, attached to the posterior wall of segment 9 and the anterior of segment 12.

Ovaries in segment 13, into which the oviducts open.

Spermathecae. Four pairs in segments 6-9, each consisting of a sac and tubular diverticulum.

Habitat. Mount Baw Baw, Victoria. (Collected by Mr. C. Frost).

- (12). **Diporochaeta grandis**, sp. n. (Figs. 94, 95, 96).
Spirit specimens nearly 10 inches long, about $\frac{1}{2}$ inch broad.

Prostomium only very slightly dovetailed into the peristomium; marked by a groove behind which a dark line runs back in the mid dorsal line.

Clitellum very strongly developed and remarkably iridescent, extending over segments 14-18 and the posterior part of 13; no accessory copulatory structures.

Setae, 20-21 on each side of the segments in front of the clitellum, 21-26 along the body behind the clitellum; irregularly arranged dorsally.

Male pores on papillae united by a mid ventral ridge on segment 18 at the level of the interval between the two ventral setae on each side.

Oviduct pores on a small, white, glandular patch on segment 14.

Spermathecal pores, 5 pairs, at the level of the ventral setae on each side, between segments 4 and 5, 5 and 6, 6 and 7, 7 and 8, 8 and 9.

Dorsal pores distinct, the first between segments 1 and 2.

Alimentary canal. Gizzard in segment 5; no vascular swellings or calciferous glands; large intestine, commencing in segment 18.

Circulatory system. Dorsal vessel single; hearts in segments 9-14.

Excretory system. Meganephric; nephridiopores difficult to detect, at the level of the eighteenth seta from the ventral surface.

Reproductive system. Testes, two pairs, in segments 10 and 11, into which the ciliated rosettes open.

Spermiducal glands, small, coiled, tubular, in segment 18.

Sperm sacs, racemose, attached to the posterior wall of segment 9 and the anterior of segment 12.

Ovaries in segment 13, into which the oviducts open.

Spermathecae, 5 pairs, in segments 5-9, each consisting of a spherical sac with a minute diverticulum.

Habitat. The Upper Endeavour River, Queensland. I am indebted to Mr. C. French and Mr. Dudley le Souëf for specimens of this fine worm, the purple colour of which, together with its remarkably iridescent clitellum, render it very distinct.

- (13). *Diporochaeta maplestoni*, sp. n. (Figs. 97, 98, 99).
Spirit specimens $6\frac{1}{2}$ inches long, $\frac{1}{4}$ inch broad; number of segments 185.

Prostomium scarcely at all dovetailed into the peristomium.

Clitellum extending over segments 14-17, but not including the mid ventral part of 17. Accessory copulatory structures, a broad band on segment 19 ventrally.

Setae. Four on each side in front of the clitellum, behind this the number does not appear to exceed 7 on each side.

Male pores on papillae on segment 18.

Female pores on segment 14.

Spermathecal pores. Two pairs at the level of the ventral setae on each side, between segments 7 and 8, 8 and 9.

Dorsal pores. The first between segments 6 and 7.

Alimentary canal. Gizzard in segment 5, vascular swellings in segments 11-13; no true calciferous glands; large intestine commencing in segment 17.

Circulatory system. Dorsal vessel single, hearts in segments 6-12.

Excretory system. Plectonephric. Peptonephridia present.

Reproductive system. One pair of testes in segment 11, into which open the ciliated rosettes.

Spermiducal glands, coiled, tubular, in segment 18.

Sperm sacs, racemose, attached to the anterior wall of segment 12.

Ovaries in segment 13, into which the oviducts open.

Spermathecae, two pairs, each consisting of a long, bent, tubular sac, with a very short, blunt, diverticulum, in segments 8 and 9.

Habitat. Warrandyte, Victoria. (Collected by Mr. C. M. Maplestone). The number of setae on each side is very few, being usually 6. In front of the clitellum there are two pairs, but behind the clitellum all except the ventral pair are irregularly arranged. This species is doubtfully associated with *Diporochaeta*.

Digaster, Perrier.

(1). *Digaster minor*, sp. n. (Figs. 100, 101, 102.) Spirit specimens $1\frac{1}{2}$ inches long, less than $\frac{1}{8}$ inch broad; about 143 segments.

Prostomium dovetailed about one-half into the peristomium.

Clitellum extending over segments 14-18 and the posterior part of 13; accessory copulatory structures; a broad, glandular patch ventrally on segment 19.

Setae, two pairs on each side regularly arranged, the two of the lateral pair twice as far apart as those of the ventral pair.

Male pores on an oval patch on segment 18 at the level of the ventral seta on each side.

Oviduct pores on segment 14.

Spermathecal pores on small oval patches just ventral of the level of the ventral setae between segments 7 and 8, 8 and 9.

Dorsal pores, the first between segments 7 and 8.

Alimentary canal. Two gizzards in segments 6 and 7; no vascular swellings or calciferous glands; large intestine, commencing in segment 17.

Circulatory system. Dorsal vessel single; hearts in segments 8-12.

Excretory system. Plectonephric.

Reproductive system. Two pairs of testes in segments 10 and 11, into which the ciliated rosettes open.

Spermiducal glands, flattened, bilobed, in segment 18.

Sperm sacs, racemose, attached to the posterior wall of segment 9 and the anterior of segment 11.

Ovaries in segment 13, into which the oviducts open.

Spermathecae, two pairs, in segments 8 and 9, each consisting of a sac and multifid diverticulum.

Habitat. Gayndah, Queensland. Under logs in the scrub.

(2). **Digaster brunneus**, sp. n. (Figs. 103, 104, 105.) Spirit specimens 6 inches long, slightly less than $\frac{1}{4}$ inch broad.

Prostomium not dovetailed into the peristomium.

Clitellum, purple colour, extending over segments 13-19 and the extreme posterior of 12; incomplete ventrally in segments 17-19.

Setae difficult to distinguish.

Male pores on segment 18, apparently at the level of the interval between the setae of the ventral pair.

Oviduct pores on segment 14.

Spermathecal pores, two pairs, apparently at the level of the two ventral setae between segments 7 and 8, 8 and 9.

Alimentary canal. Two gizzards in segments 6 and 7; vascular swellings in segments 15 and 16; large intestine, commencing in segment 18.

Circulatory system. Dorsal vessel single; hearts in segments 6-12.

Excretory system. Plectonephric.

Reproductive system. One pair of testes in segments 11, into which the ciliated rosettes open.

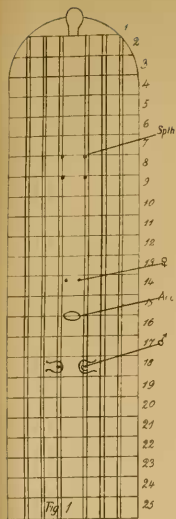
Spermiducal glands, flattened, in segment 18.

Sperm glands, racemose, attached to the anterior wall of segment 12.

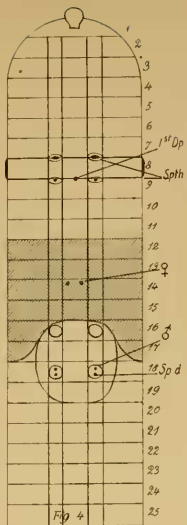
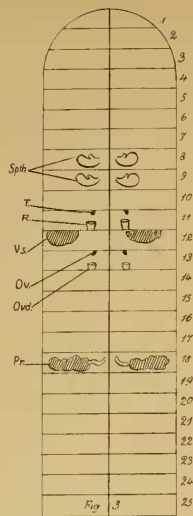
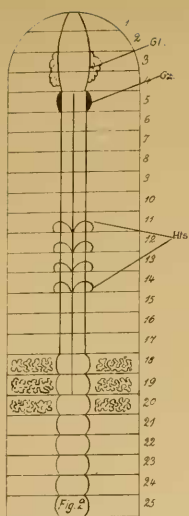
Ovaries in segment 13, into which the oviducts open.

Spermathecae, two pairs, in segments 8 and 9, each consisting of a large sac with a very small double diverticulum.

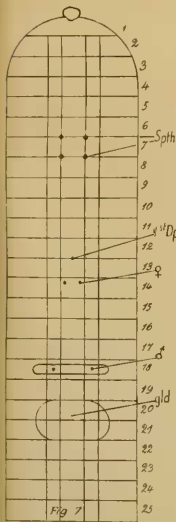
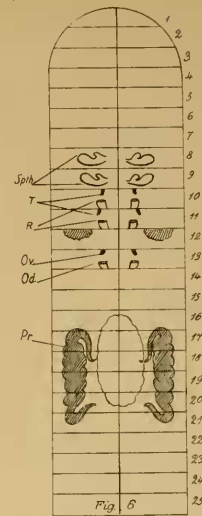
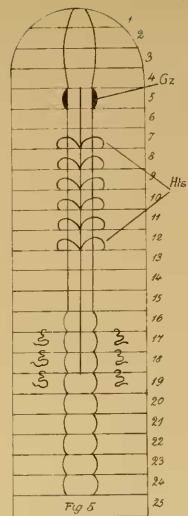
Habitat. Gayndah, Queensland.



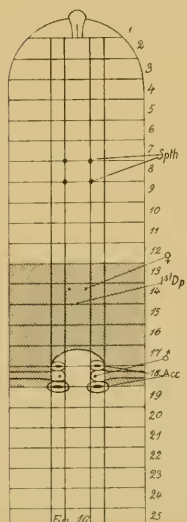
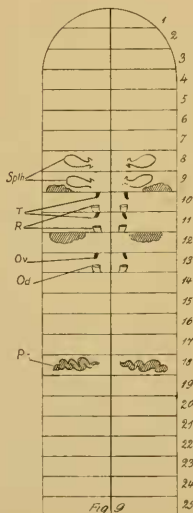
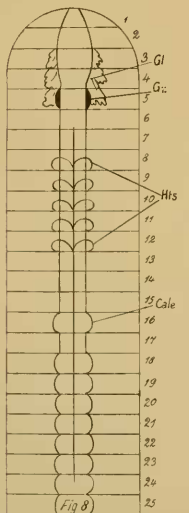
TRICHATA AUSTRALIS.



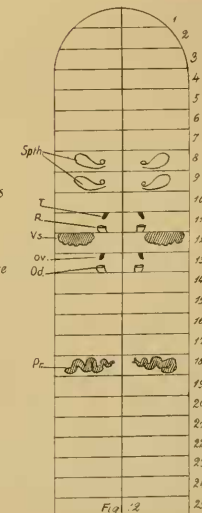
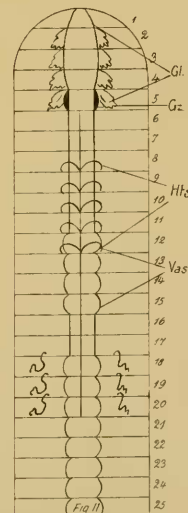
DIPLOTREMA FRAGILIS.

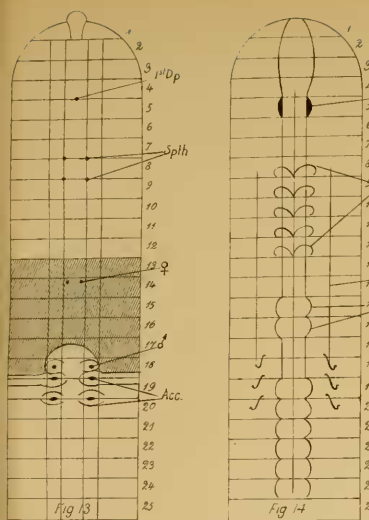


MEGASCOLIDES DIAPHANUS

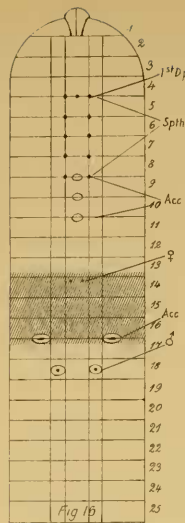
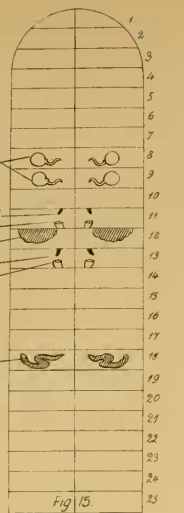
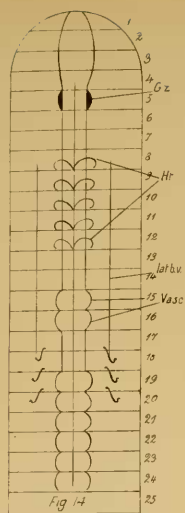


MEGASCOLIDES STEELI

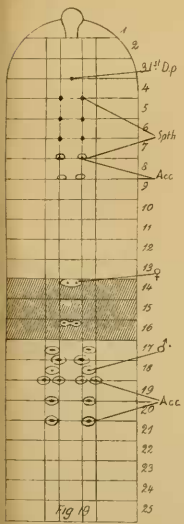
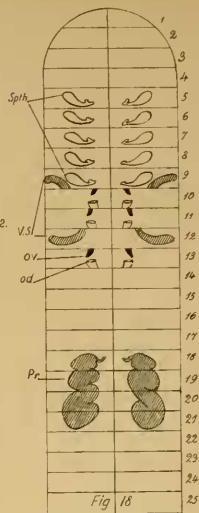
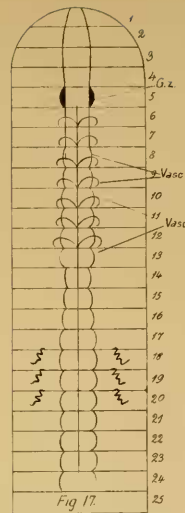




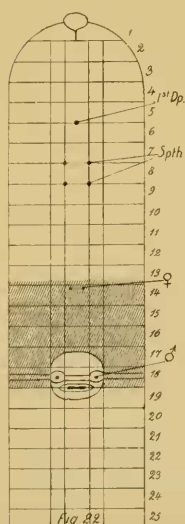
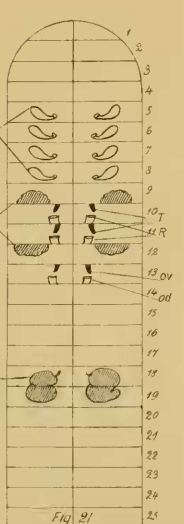
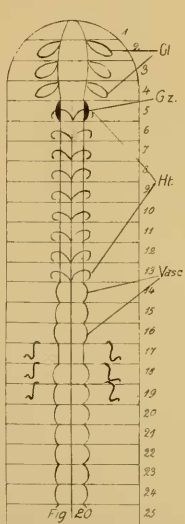
MEGASCOLIDES EUCALYPTI



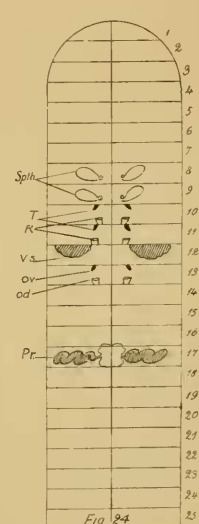
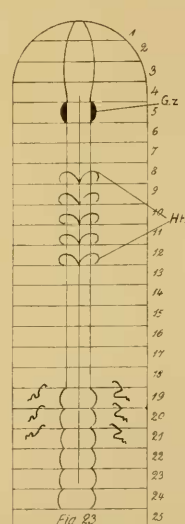
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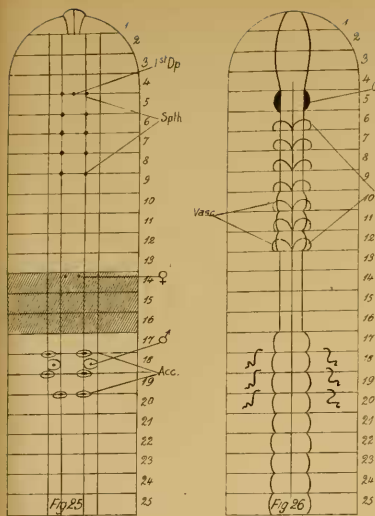


MEGASCOLIDES PUNCTATUS

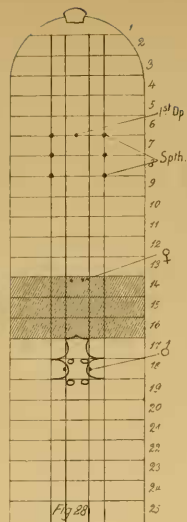
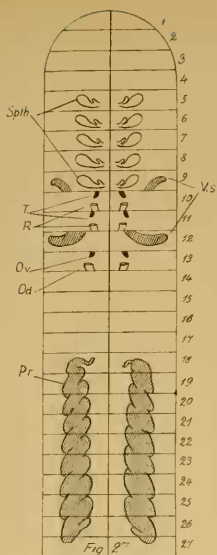
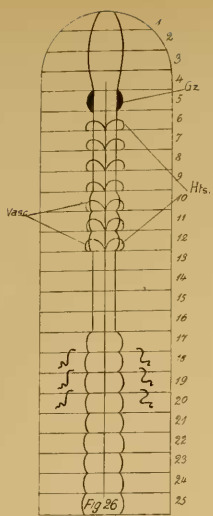


MEGASCOLIDES WARRAGULENSIS.

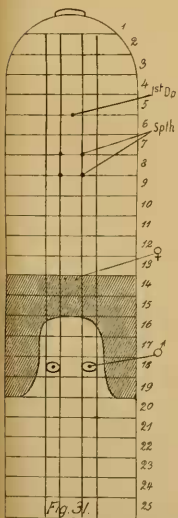
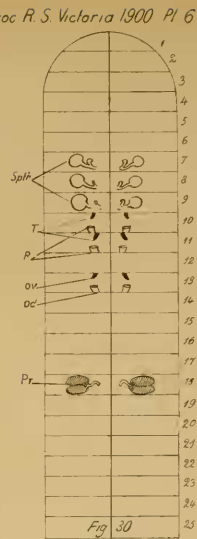
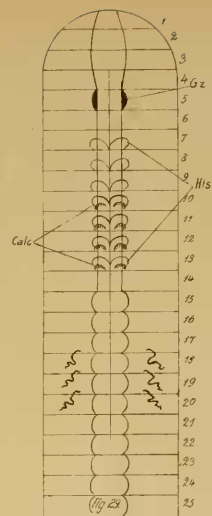




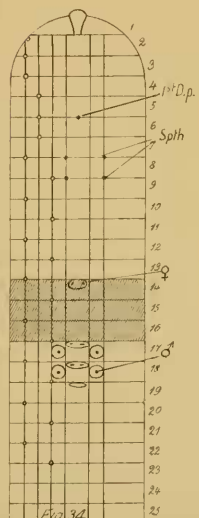
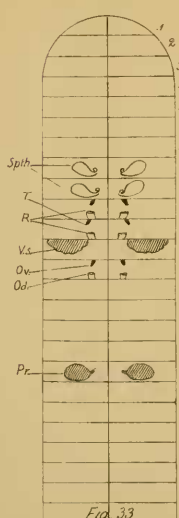
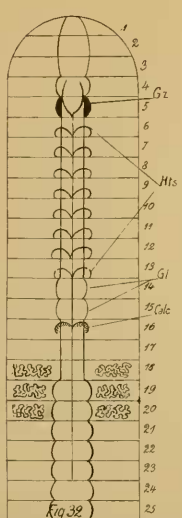
MEGASCOLIDES VOLVENS.



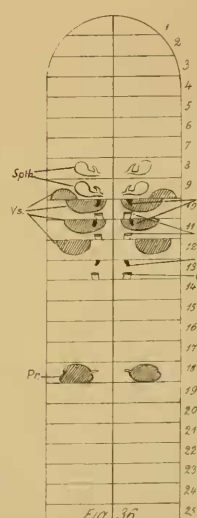
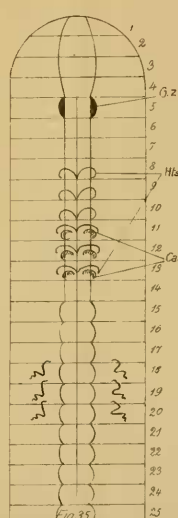
CRYPTODRILUS SHEPHARDI.

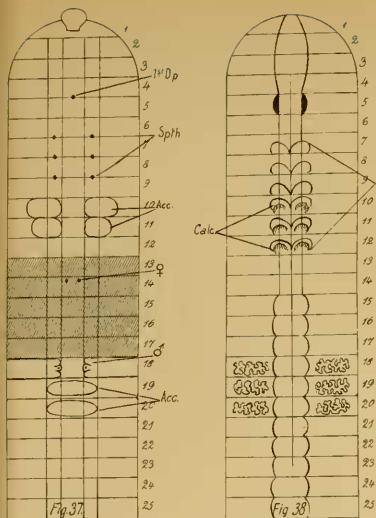


CRYPTODRILUS QUEENSLANDICA.



CRYPTODRILUS COORANIENSIS.





MEGASCOLEX ANDERSONI

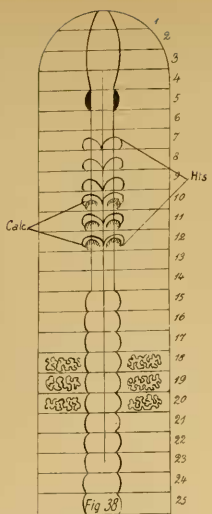


Fig. 38

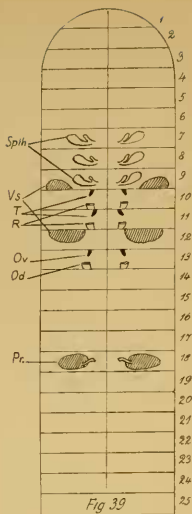


Fig. 39

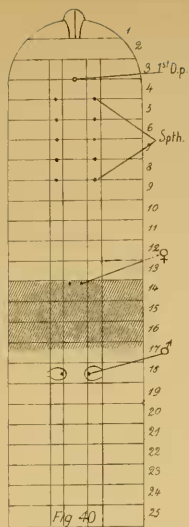


Fig. 40

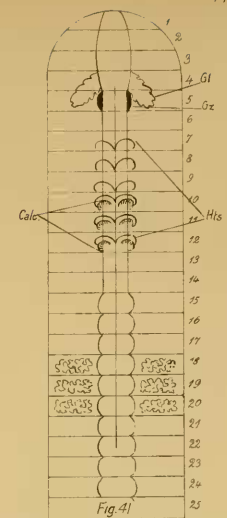


Fig. 41

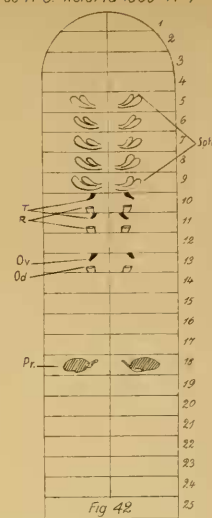


Fig. 42

MEGASCOLEX LARPENTENSIS.

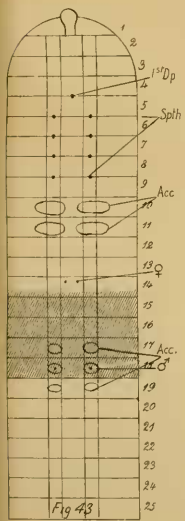


Fig. 43

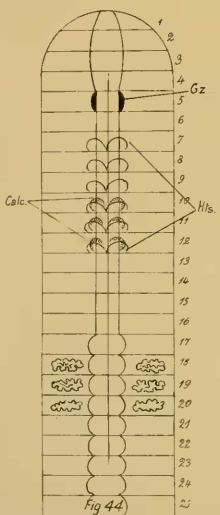


Fig. 44

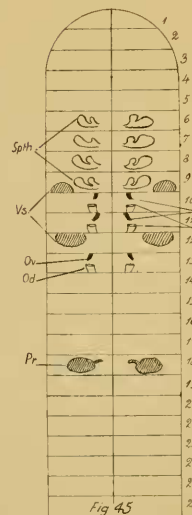


Fig. 45

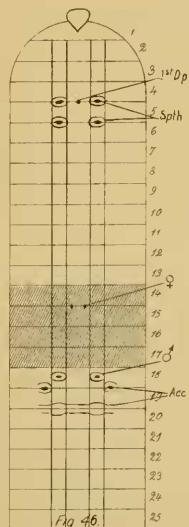


Fig. 46

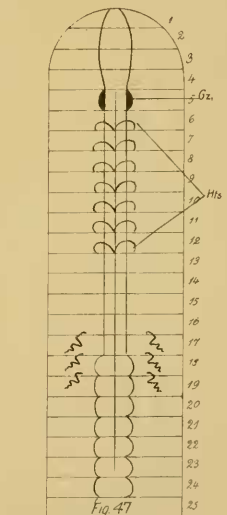


Fig. 47

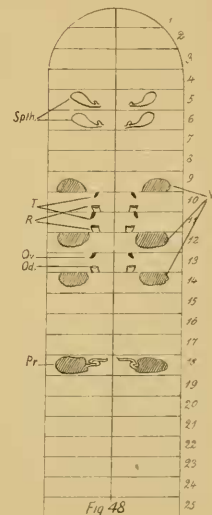
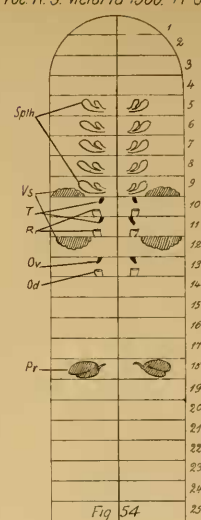
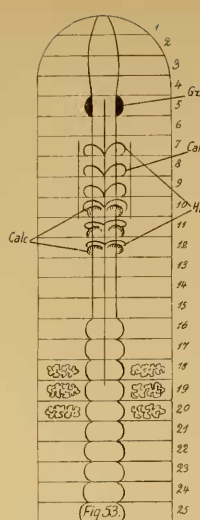
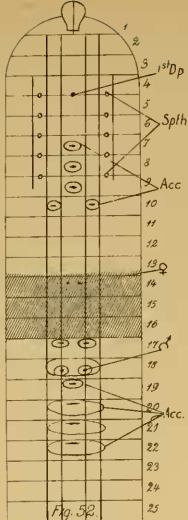
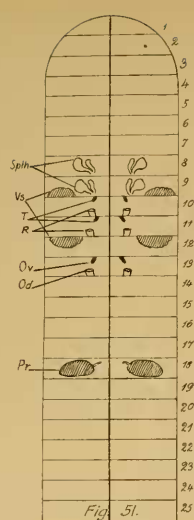
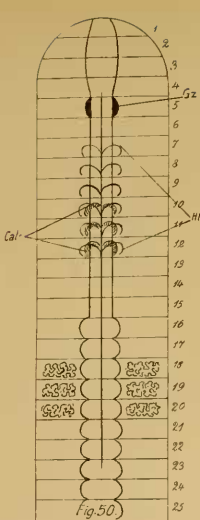
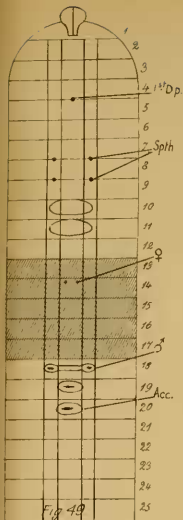


Fig. 48

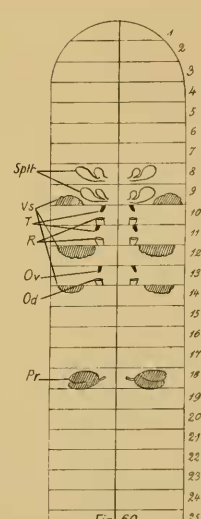
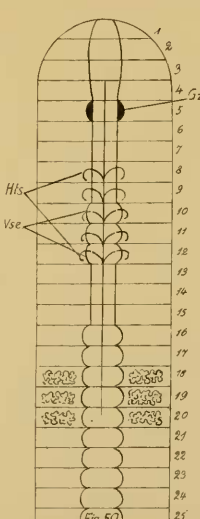
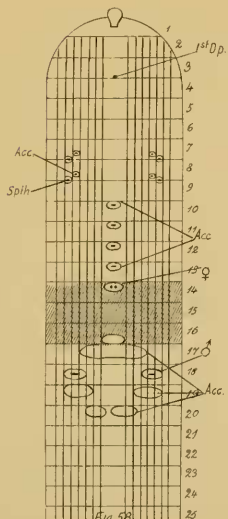
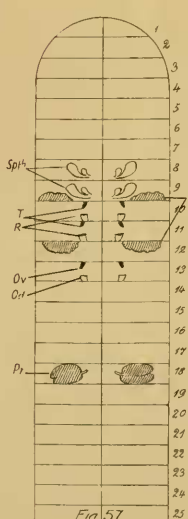
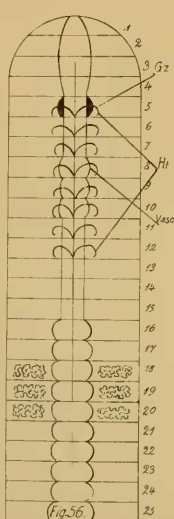
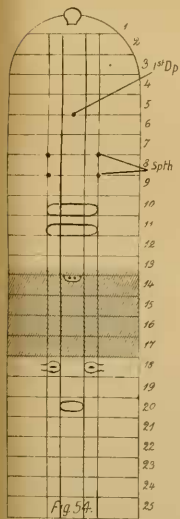
MEGASCOLEX FARDYI.

MEGASCOLEX PRITCHARDI.



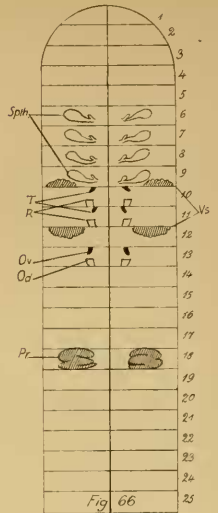
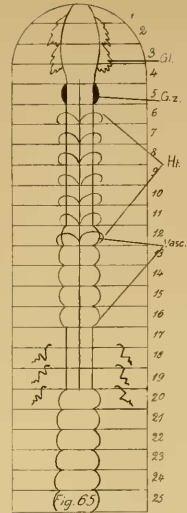
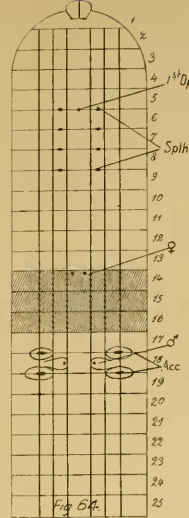
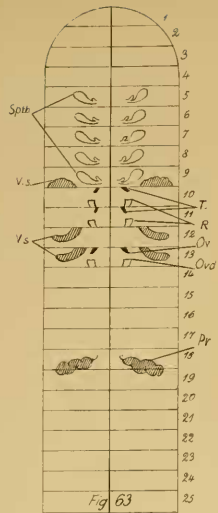
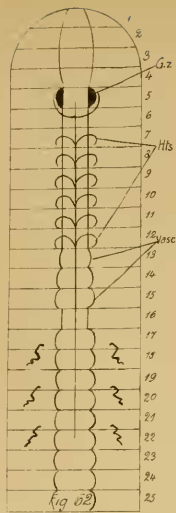
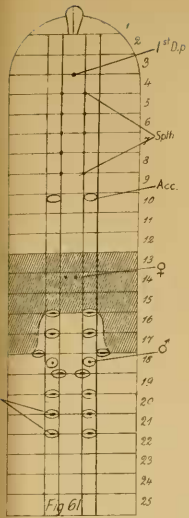
MEGASCOLEX MONTANUS.

MEGASCOLEX LOBULATUS



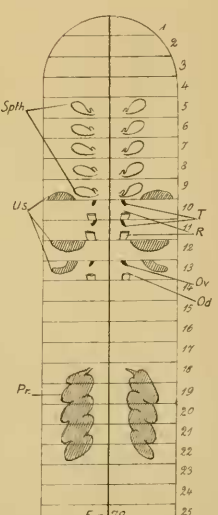
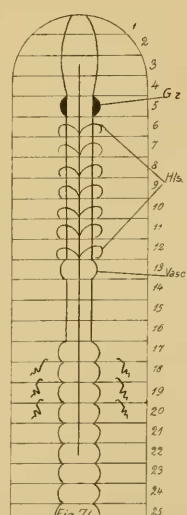
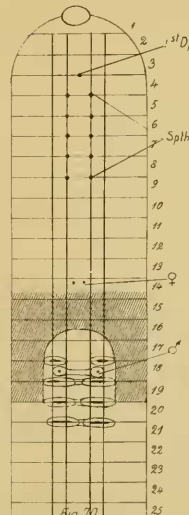
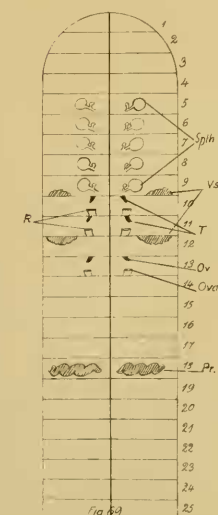
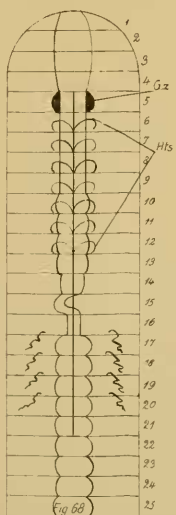
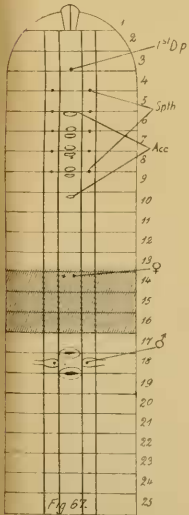
MEGASCOLEX MINOR.

MEGASCOLEX ILLIDGEI.



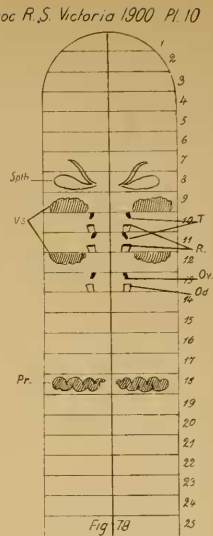
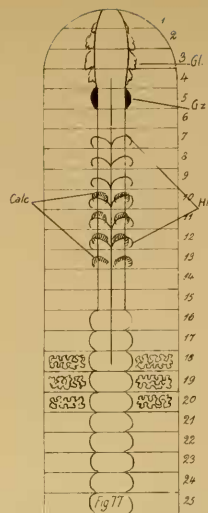
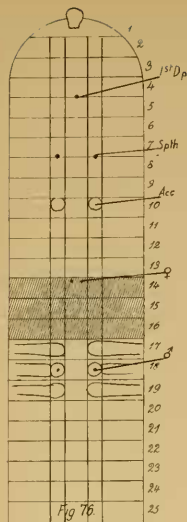
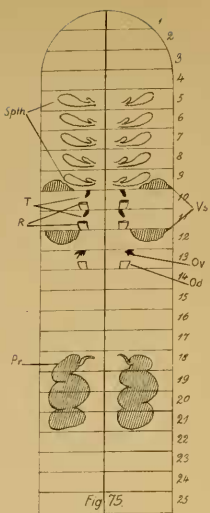
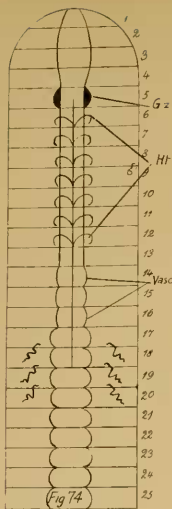
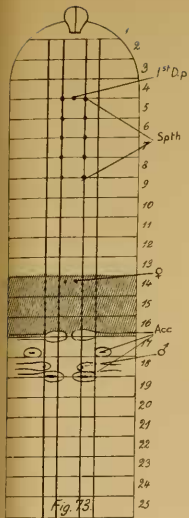
DIPOROCHÆTA DAVALLIA.

DIPOROCHÆTA MEDIOCINCTA



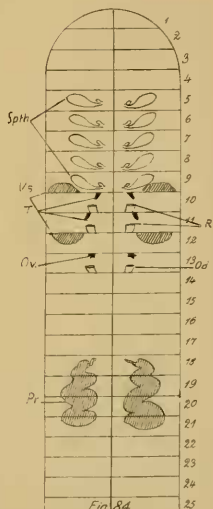
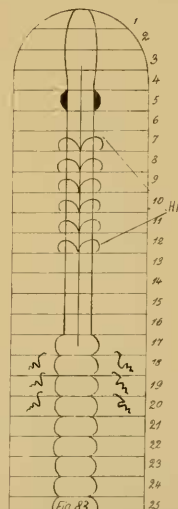
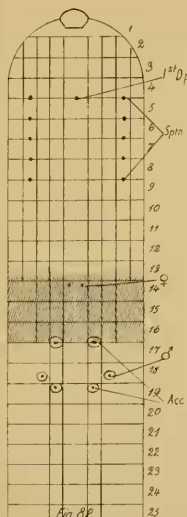
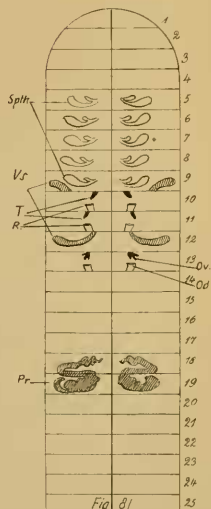
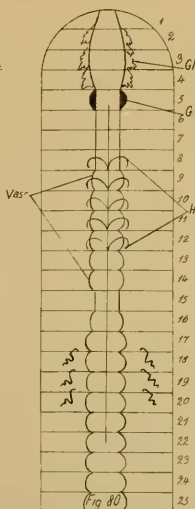
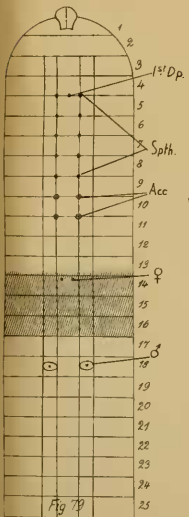
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DIPOROCHÆTA EUZONA.



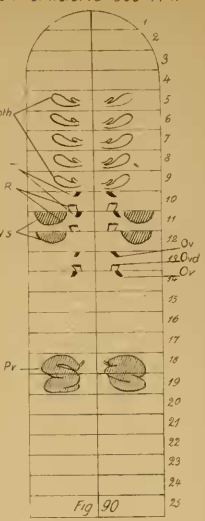
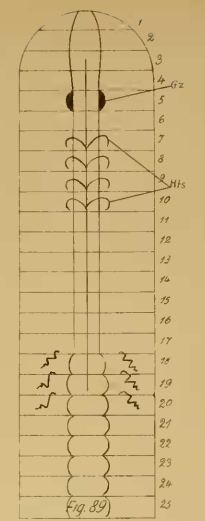
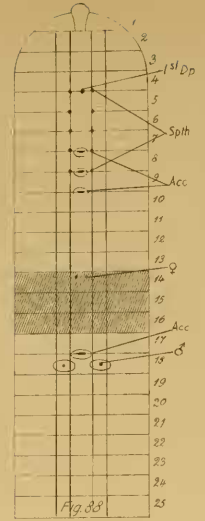
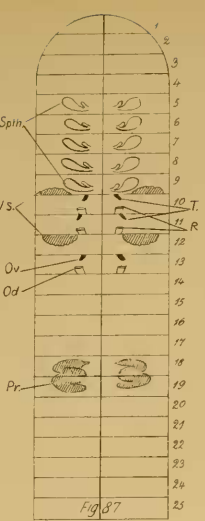
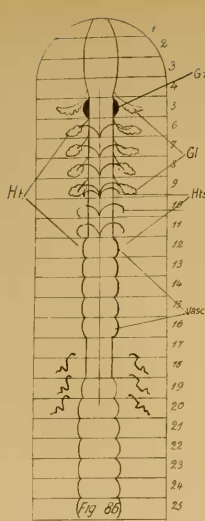
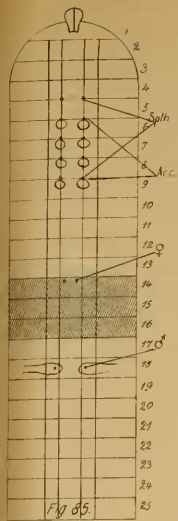
DIPOROCHÆTA TEOLEPA.

DIPOROCHÆTA NOTABILIS.



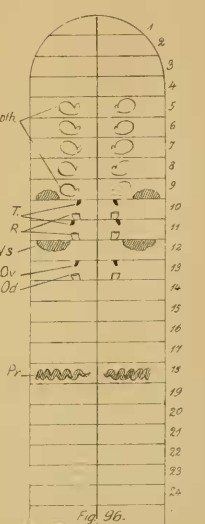
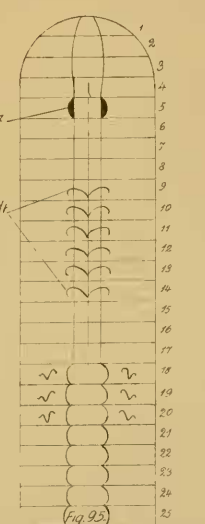
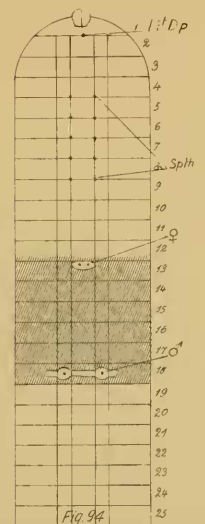
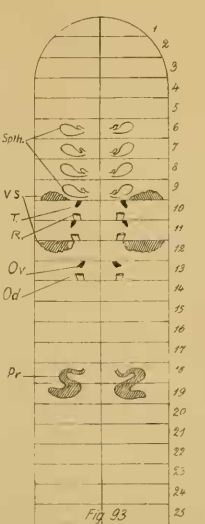
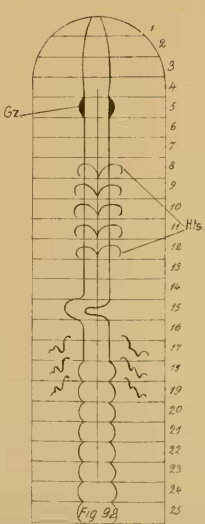
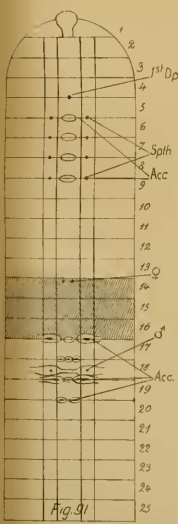
DIPOROCHÆTA RICHARDI.

DIPOROCHÆTA NEMORALIS



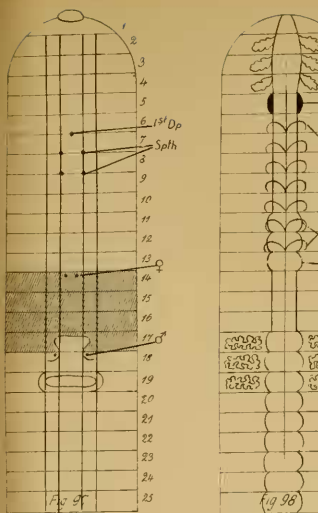
DIPORCHÆTA MANNI.

DIPORCHÆTA ARNOLDI.



DIPORCHÆTA FROSTI.

DIPORCHÆTA GRANDIS.



DIPOROCÆTA MAPLESTONI.

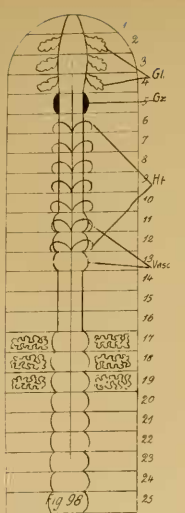


Fig. 98

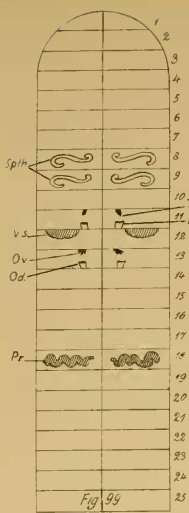


Fig. 99

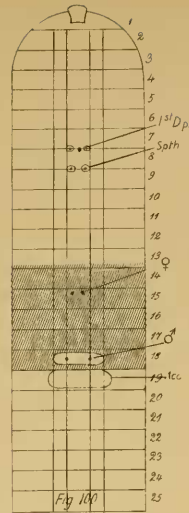


Fig. 100

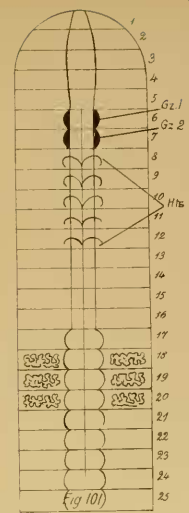


Fig. 101

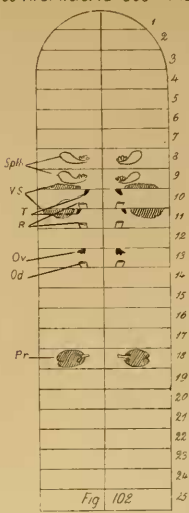
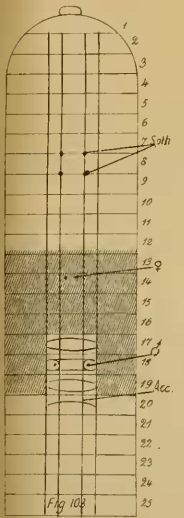


Fig. 102

DIGASTER MINOR.



DIGASTER BRUNNEUS

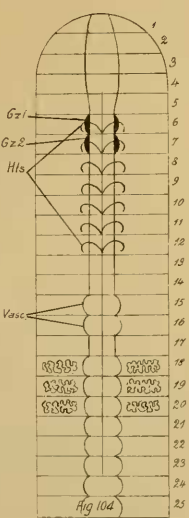


Fig. 104

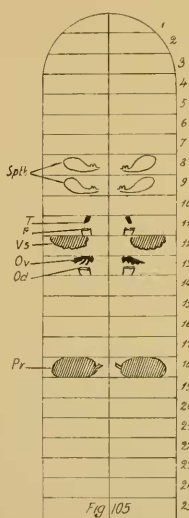


Fig. 105

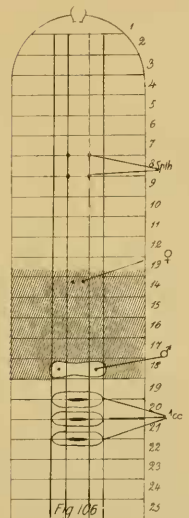


Fig. 106

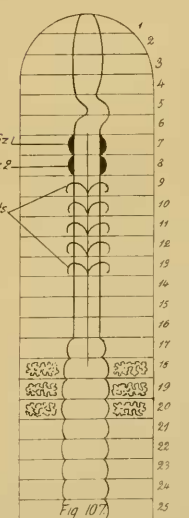


Fig. 107

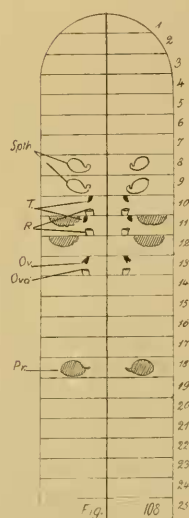


Fig. 108

DIGASTER GAYNDAHENSIS.

(3). **Digaster gayndahensis**, sp. n. (Figs. 106, 107, 108.)

Spirit specimens $2\frac{1}{4}$ inches long, less than $\frac{1}{4}$ inch broad; number of segments about 102.

Prostomium about one-half dovetailed into the peristomium.

Clitellum extending over segments 14-18 and the posterior part of 13; accessory copulatory structures; median, ventral, glandular patches between segments 19 and 20, 20 and 21, 21 and 22.

Setae difficult to distinguish behind the clitellum; the two of each pair close together in front of the clitellum.

Male pores on a ventral ridge at the level of the interval between the ventral pair of setae.

Oviduct pores on segment 14.

Spermathecal pores at the level of the ventral setae between segments 7 and 8, 8 and 9.

Dorsal pores, the most anterior one which can be seen lies between the 37th and 38th segment from the posterior end.

Alimentary canal. Two gizzards in segments 7 and 8, in segments 5 and 6 the canal is coiled and thin walled; no vascular swellings or calciferous glands; large intestine, commencing in segment 17.

Circulatory system. Dorsal vessel single, hearts in segments 9-13.

Excretory system. Plectonephric.

Reproductive system. Two pairs of testes in segments 10 and 11, into which the ciliated rosettes open.

Spermiducal glands, small, lobate in segment 18.

Sperm sacs, racemose, attached to the anterior walls of segments 11 and 12.

Ovaries in segment 13, into which the oviducts open.

Spermathecae, two pairs, in segments 8 and 9, each consisting of a short sac with a small spherical diverticulum.

Habitat. Gayndah, Queensland

ART. V.—*A Contribution to our Knowledge of the Spiders of Victoria; including some New Species and Genera.*

By H. R. HOGG, M.A.

(Plates XIII. to XVII.)

[Read 19th April, 1900].

The spiders from my own collection here dealt with have been taken almost wholly about the neighbourhood of Macedon, and may therefore be considered as fairly representative of the central portion of the Dividing Range of the colony of Victoria.

The Australian spiders described by L. Koch and E. von Keyserling, our chief workers in the past, were mostly collected by the agents of Messrs. Godeffroy Brothers of Hamburg, from about their trading stations for produce in Queensland, New South Wales, and the Pacific islands; they also include the work done by Mr. Bradley in New South Wales, Mr. Urquhart in New Zealand, and by Messrs. Thorell and O. P. Cambridge, from desultory specimens, so that the southern portion of the continent has remained more or less unworked.

The Godeffroy collection, unhappily, was broken up some years ago, and no reliance can now be placed on the specimens at times sold by dealers as L. Koch's types, but the National Museum of Victoria has a good representative set of named specimens, purchased many years ago therefrom, reputed to be types. Von Keyserling's collection is in the British Museum, and his types are available for comparison, but the Australian ones are comparatively few in number, so that in determining species written descriptions have to be followed in the large majority of instances, leaving an unsatisfactory margin of liability to error even where, as in this case, they are so minutely and conscientiously detailed.

The illustrations are fortunately very voluminous, and where I have been able to compare them with the originals, I have been imbued with great respect for the accuracy of the work.

In descriptions of new species I have endeavoured to follow as closely as possible Herr Koch's methods, and only venture to hope that later students may find my own as lucid and reliable as I have found his.

In spite of the fact that we have many forms extremely widely spread over Australasia, there are undoubtedly others whose habitat is comparatively local, and different localities seem to develop characteristics which are quite distinguishable.

In these southern coastal districts, we miss the larger members of the various families, as well as the more exaggerated variations from the simple types, which are so numerous in the warmer central and northern portions of the continent.

As examples of this I would instance the larger Nephilae Avicularidae and Philodromidae, as well as the more pronounced forms of Gasteracantha found in the north, of which our southern representatives are smaller and more normal in form.

This suggests the inference that congenial surroundings of life and abundance of food have had a clear influence on the specialisation of members of the various families in the same manner as animals develop size and abnormal shapes under the more easy conditions of domestication.

One special feature of the spider fauna of Australasia seems to be that, while we find on the main continent species located also in New Zealand, Fiji, and other Pacific islands at great distances from our coasts, instances of intercommunity between Australia and the Northern islands, or Asia, are of much more rare occurrence, although the links of land connection are broken by comparatively narrow straits. I except, however, New Guinea and North Queensland, between which, as might be expected, there is considerable interchange, though to what extent we shall not know definitely until more New Guinea material has been worked out.

As far as I can judge at present, Southern Victorian species spread along the coast as far west as King George's Sound in greater abundance than only as far north as across the Murray into Riverina. On the other hand a good many of our species run up the coast-line to Bowen and Townsville, in Queensland.

I say so far as I can judge, because our inland stations require more careful searching than they have yet had before anything like accurate areas for species can be assigned.